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Teachers' pedagogical practices, shift, and professional growth in online courses

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TEACHERS' PEDAGOGICAL PRACTICES, SHIFT, AND PROFESSIONAL
GROWTH IN ONLINE COURSES

An Abstract of a Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved:

Dr. Jill Uhlenberg, Committee Chair

Dr. Sarah Vander Zanden, Committee Co-Chair

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College

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May 2018

ABSTRACT

This phenomenological study aims to understand the faculty member's technological and pedagogical challenges when they teach an online course. The participants of the study were eight faculty members from a Midwestern university. All the participants had attended at least one Quality Matters workshop that was intended to help them design their online courses. While the workshops that the participants attended were similar, they were not the same. Some had participated in the workshop five or six years ago, and some had attended a more recent one. The faculty members then worked with instructional developers at the same university to design and develop their online course before it was offered to students. The study findings are categorized based on the emerging themes resulting from these interviews. Results of this study will inform the decision making that influences online teaching as well as professional development opportunities offered to the faculty who teach online courses.

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Dr. Benjamin Forsyth, Committee Member

Mr. Christopher Neuhaus, Committee Member

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May 2018

DEDICATION

I dedicate my dissertation to my mom and dad, Mahboobeh and Majid. You have shared your love for education and encouraged me to work hard to achieve what I desire. I wouldn't have been where I am without your love and encouragement. Thank you for always being there for me, I can never thank you enough.

I also dedicate my dissertation to my sister, Zahra, who has been my great friend with unconditional love. Your love and positive vibes have kept me going

I also dedicate this dissertation to my husband, Justin. You have walked this path with me with care, love, and encouragement. Thank you for spending so much time helping me, reviewing my work, listening to me patiently and supporting me unconditionally. I am so lucky to be married to you.

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CHAPTER 1

ONLINE EDUCATION ISSUES AND DEVELOPMENTS

Introduction

The number of higher education students taking online courses is increasing. According to the Online Learning Consortium's (2015) Online Report, out of a total of 5.8 million students enrolled in higher education, 2.9 million are taking all of their classes online. The same report also indicates that more than one in four students (28%) has taken at least one online course (Online Learning Consortium, 2015). Recent research has focused on educational technology that facilitates student learning and the importance of research in eLearning: "eLearning has focused on the delivery of information rather than the learning of the information," (Robinson & Schraw, 2008, p. 1). Online education provides an opportunity for distance learning and flexible time for students to work on tasks and their studies. Instructors who teach online courses realize that online instruction is more than just being in touch, providing materials, and having exams. They need to provide greater interaction, collaboration, and higher-order thinking with more than one dimension (Yang & Cornelious, 2005).

Some factors that may affect one's teaching and learning in online courses are the faculty member's Technological, Pedagogical, and Content Knowledge (TPACK). TPACK is a framework that emphasizes the importance of teachers' technological, pedagogical and content knowledge expertise, as well as their readiness to integrate technology into the classroom to meet the students' learning outcomes (Mishra & Koehler, 2006). Different institutions adopt different tools, techniques, and expertise to

meet the design needs for online learning. One of the tools that is used by some institutions to design online courses is the Quality Matters (QM) rubric. QM offers a peer review process that is intended to certify the quality of online or blended courses (Shattuck, Zimmerman, & Adair, 2014). There are also other online/blended teaching standards and frameworks such as the International Association for K-12 Online Learning's (iNACOL) Blended Learning Teacher Competency Framework, which consists of standards and teacher competencies in online and blended teaching and learning (Powell, Rabbitt, & Kennedy, 2014). The different frameworks designed by iNACOL can be used for design and faculty professional development in online courses.

This study aims to understand the challenges that faculty members faced when they began teaching their online courses, the solutions they found to overcome those obstacles, and to get a sense of what they believe was their own technological, pedagogical, and knowledge growth and/or adaptations when teaching an online class. It also seeks to understand any problems, technological issues, or pedagogical gaps that they identified after teaching an online course for a few semesters and offer some recommendations.

The faculty who were interviewed for this study all have one similar experience. They had all taken the "Applying the Quality Matters Rubric" training from the QM program, and some attended additional training. The online classes were QM informed, but not necessarily QM Certified. QM informed, in this study, refers to those courses that have used the QM rubric and have undergone some institutional peer-review process (MarylandOnline, 2017). The peer review process was conducted by instructional design

or instructional development experts who were hired by the institution, not the QM program. However, the instructional designers/developers all had appropriate QM training and instructional design experiences.

Purpose and Questions

This study was designed to understand faculty perceptions of their own technological and pedagogical development from teaching online courses and the influence of their online teaching experience in both their online and face-to-face teaching practices. This study also aims to understand the existing gaps and challenges in the pedagogical and technological knowledge that faculty identify in teaching an online course. The results of this research will help instructional designers understand the pedagogical shifts that instructors adopt when they start teaching an online course. It will also help them to understand the challenges that faculty members continue to deal with after teaching online classes for more than two semesters. Faculty's perception of improvements in their pedagogical and technological knowledge as a matter of using design tools such as QM, attending workshops, and teaching their online courses is another factor this study sought to discover.

In their research analysis of 400 articles and conference presentations regarding online teacher professional development, Dede, Ketelhut, Whitehouse, Breit and McCloskey (2009) state that many of the professional development practices are not effective because they are either (A) not applicable, (B) the teacher does not have the time/resources, or (C) the professional development is not an ongoing process. In their research agenda for online teacher professional development, Dede and colleagues (2009)

recommended that researchers should try to create usable knowledge in their studies. In this review, they state that some of the studies reported complex information and data, but not necessarily information and data that is applicable. “Usable knowledge comes from insights gleaned from research that can be applied to inform practice” (Dede et al., 2009, p. 15). As a practitioner, instructor, and instructional designer, the researcher in this current study aims to understand the current state of online teaching and learning, as well as the pedagogical and technological challenges in order to offer practical ideas for future professional development opportunities and possible resources that could benefit other faculty who teach online courses. The four questions this study seeks to answer are:

1. What are instructors’ perceptions of the development of their technological, pedagogical, and content knowledge as online instructors after teaching a QM informed course?
2. What are the pedagogical and technological challenges that faculty identified in their online teaching?
3. What resources do instructors use to overcome their learning curves in their online courses?
4. How do instructors’ make decisions regarding the student interactions within the online courses?

Significance of the Study

Faculty play an additional role of designers when they design and develop their online courses, whether they are using the Quality Matters Rubric or other course design resources. They select alternative versions of course materials and activities, and they

find solutions to many pedagogical challenges and burdens (Koehler, Mishra, Hershey & Peruski, 2004) as they teach their courses. A single session of organized training, such as a QM workshop, is not sufficient in developing maximal online educational experiences. Through their experiences, faculty develop their course design and pedagogical approaches to better suit their content and students' learning outcomes. They need to continue adopting new technology when it helps them achieve the learning outcomes. Solutions and instructional strategies that faculty adopt are unique to their content or students. The one size-fits-all professional development trainings that are currently offered are good solutions to inspire some faculty or introduce technology; however, it is not enough for developing quality online experiences. When the content of the professional development has nothing to do with the problems that individual faculty encounter in their classroom those workshops can become a burden and irrelevant to one's professional practices.

When faculty share their practices and experiences, this can benefit other faculty and designers in adapting their own material and aid in the creation of new pedagogical approaches that fit the students' needs. This study can be a foundation for personalized faculty professional development opportunities or may lead to an online pedagogy repository that can support design and delivery of the online courses. This study may also be a good resource for research-based tools such as the Quality Matters rubric for further development.

Definition of Terms

Some of the common terms used in this study are listed below:

Technological, Pedagogical, and Content Knowledge (TPACK). TPACK is a framework that emphasizes the importance of teachers' technological, pedagogical and content knowledge expertise, as well as their readiness to integrate technology into the classroom to meet the students' learning outcomes (Mishra & Koehler, 2006).

Quality Matters (QM) Rubric. Different institutions adopt different tools, techniques, and expertise to meet the design needs for online learning. One of the tools that is used by some institutions to design online courses is the Quality Matters (QM) rubric. QM offers a peer review process that is intended to certify the quality of online or blended courses (Shattuck et al., 2014).

Unofficial review. In this study, unofficial review is the term used for the courses that are designed based on the QM rubric. The faculty who have designed those courses in this institution have attended professional development that is facilitated by the QM program, to learn how to apply the rubric when they design online courses. However, in this institution, most of the courses are reviewed internally within programs or by the instructional designers who are also following a QM informed course design. The courses are reviewed by another professional within the institution to follow the QM rubric but they have not been reviewed or certified by the QM program.

Conclusion

A growing number of students who are taking online classes, or attending online programs, increase the institutional needs to provide online classes. Adopting resources and workshops that facilitate the transitions for faculty to develop their online version of courses are helpful, however, they are not enough. As the online programs and studies develop, rubrics and standards such as QM are also revised (Shattuck, 2012), and the quality and variety of professional development opportunities need to grow. Professional developers have to think about an ongoing process, rather than one-size-fits-all approaches and one-time trainings that often are not applicable across settings (Dede et al., 2009). For ongoing studies, listening to the instructors to understand their perspectives and needs is the first step before adopting resources and frameworks, or developing efficient professional development opportunities (Dunne & Martin, 2006). Hence, this study's purpose is to understand the challenges that faculty face while also understanding their personal development in the three domains of TPACK that would influence their instruction.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

A variety of key words were used to retrieve resources that include suggestions and ideas for faculty development and improvements to online course design and development. Some of the key terms used while searching for the literature were: QM, Quality Matters, online teaching and learning standards, online teaching, online professional development, TPACK, online faculty, and online learning. To narrow down the search, studying faculty development of technological, pedagogical, and content knowledge was used as the main theoretical framework of this study. In addition, other studies that addressed faculty and instructor professional development, online learning, and quality online learning were used to inform this study. Among those studies and frameworks, some of the instruments used in the previous studies were also reviewed to be adopted or modified for this study. However, the existing instruments did not fit the purpose of this study. This review of literature was completed in order to understand the different factors that influence online teaching and learning experiences. Some of those factors are a teacher's technological, pedagogical, and content knowledge, and institutional or individual teacher's adoption of an online course design and development model such as QM. Other factors that are influential quality factors for teaching online include a student's readiness, faculty readiness, and technology advancements. While this chapter is focused on the review of literature, further literature is included in the methodology section in chapter 3 where it was relevant to the discussed methods.

Theoretical Framework

The choice of framework, theoretical models, and previous findings guided the research questions. According to Merriam (1998), “The framework of your study will draw upon the concept terms, definitions, models and theories of particular literature based and disciplinary orientation” (p. 46). They were based on the “gap” and how the data collection and analysis were approached (Merriam, 1998).

TPACK Framework

In this section, the TPACK conceptual framework and its importance to the online course development and teaching will be discussed. Mishra and Koehler’s (2006) articulation of teachers’ technological, pedagogical, and content knowledge (TPACK) has been a very influential framework in the field of educational technology. The current state of online and distance instruction relies on the technology that facilitates the learning modality, and therefore TPACK framework was used as the main theoretical framework for this study.

The Teachers’ Technological, Pedagogical, and Content Knowledge (TPACK) framework emphasizes the importance of these three different types of instructor knowledge and their interaction in teaching (Mishra & Koehler, 2006). TPACK emphasizes a teacher’s readiness to integrate technology into the classroom alongside their pedagogy and content in order to meet student learning outcomes. Mishra and Koehler’s (2006) TPACK framework is a foundation for many studies that have examined integrating technology into teacher education and faculty development programs. “Technology has a supportive role in fostering the learning outcomes...” and

“... new technology can support active learning and community but not necessarily” (Reigeluth & Carr-Chellman, 2009, p. 226). Sometimes creating online communities or appropriate interaction opportunities is even more difficult when instructors rely solely on the technology, especially if the instructor or the students are not technologically savvy.

The TPACK framework brings attention to the teacher’s knowledge that results in effective technology integration. This framework also emphasizes the “connections among technologies, curriculum content, and specific pedagogical approaches, demonstrating how teachers’ understandings of technology, pedagogy, and content can interact with one another to produce effective discipline-based teaching” (Harris, Mishra, & Koehler, 2009, p. 396). “The TPACK framework suggests that content, pedagogy, technology, and teaching/learning contexts have roles to play individually and together” (Koehler & Mishra, 2009, p. 67). In order to teach successfully and effectively the teachers need to constantly grow in all these components, especially in the online environment where pedagogy and content is more dependent on the technology.

One of the methods currently used to change teacher-centered courses that have passive student roles is flipped learning in which students watch or listen to the lecture at home and do the homework in classroom (Arnold-Garza, 2014). This keeps students engaged in the classroom. When it comes to teaching online, the way these methods are implemented may not be the same as in a face-to-face classroom. For example, one way to keep students engaged with the materials is using graphics and visual media for teaching (Clark & Lyons, 2011). If faculty are not aware of technological learning tools

that make interaction and active learning possible in an online course, they may not be able to create learning experiences that are equally as engaging for the students.

Professional Development and Quality Assurance

The Quality Matters (QM) rubric is designed based on practices and instructional design research (Pollacia & McCallister, 2009) and is used by faculty to design their online or blended courses. It is also used for the instructional designers to provide peer feedback and develop the quality of a course. The QM rubric is a research-based tool with 41 specific standards (at the time of this research), and annotations that support designing and reviewing quality online courses (Shattuck, 2012). QM certified courses are reviewed by a certified committee to ensure they meet at least 85% of the essential standards established by the QM program. However, there are other factors beside the course design, such as course delivery and faculty readiness, that impacts a student's learning (Knowles & Kalata, 2010). During an unofficial peer review, faculty and instructional developers will make additional adjustments to ensure they meet students' learning outcomes. Given the challenge of needing a more personalized rubric, McGahan, Jackson, and Premer (2015) decided to create a different rubric for online courses to ensure that faculty had enough time and assistance when they designed their online courses. While using a more personalized checklist to review the quality of online courses for the campus was useful, keeping it up to date for the instructional designers and helping faculty with the updated materials was time-consuming and required significant time on the instructional designer's side (McGahan et al., 2015). Universities

and other institutions who use these standards may modify some of them to meet the specific needs of their own students, and those adjustments vary between institutions.

Effective online learning depends on different factors such as support for the design and pedagogical needs. Maximizing the use of learning management systems, alignment of assessment, and feedback opportunities also influence the effective online teaching (Murray, Pérez, Geist, & Hedrick, 2012) but instructional design support may vary from faculty to faculty and from one academic institution to another.

Driscoll, Jicha, Hunt, Tichavsky, and Thompson (2012) studied 368 students' performance, enrolled in three online and three face-to-face sections of the same sociology course. The course materials, assessments, and instructors were the same amongst the two delivery formats. Their findings indicated the online courses were delivered as well as the face to face courses. This study argues that students perform as well in online courses as in face-to-face courses if the online course is well designed and appropriate pedagogy is adopted.

Teachers' Readiness

Teachers' readiness, experience, tools, resources, and their professional learning network can influence their teaching pedagogy. Having a good course design is another factor that can affect online teaching and learning. This review of literature contains some information from previous studies regarding the factors that influence the quality of online courses, including, but not limited to, rubrics, frameworks, and student and faculty readiness, all of which impact online teaching and learning.

Student Readiness

In addition to teacher readiness and required knowledge to teach the online course, student readiness is also a very important factor in learning and quality online education (Yukselturk & Bulut, 2007). Yukselturk and Bulut (2007) researched variables that influence student success in online courses and found that some of the factors necessary for quality online learning are: student's self-regulated learning, adaptability to the different methods, orientation regarding the course expectations, high self-motivation through the course, a monitored learning and systematic feedback, real life and relevant course content, and different possibilities for students' interactions in the course (Yukselturk & Bulut, 2007). On the other hand, in their interviews with students Yukselturk and Bulut found that students who could not maintain their motivation level enough to be self-regulated (meaning to spend enough time and adjust to the online course throughout the course) were the least successful.

Aside from the student readiness factor, Yukselturk and Bulut's (2007) study also found that students who did not successfully pass their online course(s) had reported initial higher motivation, but throughout the semester the teachers and students reported that the students' level of motivation and progress declined. Even though Yukselturk and Bulut (2007) report several different factors (mostly related to the students' self-regulation) that resulted in not succeeding in an online course, they did not report specifically on what other factors might have resulted in the decline of the students' motivation in the online course.

In the current state of online education, digital technologies are used to facilitate online teaching and learning and therefore the way that students are encouraged to use those technologies is an “essential aspect of design” (Beetham & Sharpe, 2007, p. 33). Fetzner (2013) did a study on unsuccessful online students to look for emerging themes shared by those students who dropped out or did not do well in online courses. From the 438 students who fully answered the survey, the top three reasons that students reported why they were not successful were: 19.7% said there was too much work and it was too hard to catch up, 14.2% cited personal problems (health, job or family issues), and 13.7% referred to study-life balance. There were other reasons such as the course taking too much time or they did not like the instructor’s teaching style. One of the survey questions that students were asked was: what advice would they give to future students? Their answers included: stay up with the course, pay attention to time management, develop organizational skills, put aside some time every week for the class assignments, know how to get technical help, know the expectations (e.g., a lot of writing/reading is required), review the course syllabus and expectations carefully, and communicate with their instructors. Factors such as managing time, working full time, family, and other responsibilities that influence time management in the online courses, have been addressed in many of the studies that are focused on the student readiness and success in online courses (Fetzner, 2013; Hung, Chou, Chen, & Own, 2010; Yukselturk & Bulut, 2007).

Learner Control

Hung and colleagues (2010, p. 1087) consider “learner control and self-directed learning” as the two most important characteristics for a learner. Being a self-directed learner can also be essential for instructors who want to be successful online teachers, and therefore it is important to study the effect of faculty readiness and their learning styles concerning success and satisfaction in the online course (McLawhon & Cutright, 2012). McLawhon and Cutright (2012) looked at instructors’ learning styles as an indicator of online faculty satisfaction and how some faculty predict their dissatisfaction with the online course before they teach it. These predictions were affected by faculty members’ technical skills, personality, and unfamiliarity with the technology of the online course (McLawhon & Cutright, 2012). Therefore, faculty prediction and perception of how satisfied they might be with the online course may affect the way they design or deliver the course, and those perceptions may change after teaching the course one or more times.

Student Online Learning Experience

In their study of students with a greater amount of experience taking online courses (seven or more times) and students who were novices (taken three or less online courses), Hixon, Ralston-Berg, Buckenmeyer, and Barczyk (2016) suggest some student expectations that are required to be met in the online courses. In this study, Hixon and colleagues (2016) rewrote the QM rubric standards in student language and asked them to rank the various standards based on how important they thought they were to their learning. “More experienced online learners had the greatest needs and expectations of

their instructors for course quality” (Hixon et al., 2016, p. 10) The more experienced students seemed to emphasize the importance of cohesiveness and communication in their online courses. Some of the more influential elements in having a quality online course addressed in Hixon and colleagues’ study, from the standpoint of most of the students who participated in their study, were: (A) alignment of the course learning outcomes with the activities and assessment, (B) organization and easy navigation, including the readability of materials, (C) clear expectations, (D) introduction and communication opportunities with their classmates, and (E) explanations of etiquette and acceptable online behavior. The significance of this study indicates that students with more experience in online courses appeared to have higher expectations. Some of those were clarity of the course expectations and materials. The checklist of standards used in Hixon et al. (2016) were designed using a modified list of the QM standards, but students who participated in their study also had the opportunity to answer some open-ended questions if they wanted to include additional ideas.

Technological Developments and Learning

Robinson and Schraw (2008), in their book, *Recent Innovations in Educational Technology That Facilitate Student Learning*, address technological advancements that facilitate learning. Some of those advancements that are relevant to online courses are course management tools, such as Blackboard Learn, and other communication technology, such as emails. While these tools sped up communication, they also affected student-teacher interactions. Robinson and Schraw (2008) also addressed the advancement of animated technologies, such as smart texts, that allowed assessment of

students' reading and comprehension as they read the online content. While these advancements enable teachers in many ways, learning how to use them also requires a large time commitment from the teachers.

Ko and Rossen (2010) elaborate on numerous tools that can support the different kinds of learning activities in the online environment. They divide the different components needed in an online course and then share examples of presentation areas and formats, different discussion forums, and collaborative and communication tools, including social media and instant messaging, online quizzes, and grading possibilities. They also address issues such as online class sizes and how that can affect the workload and activities in the online courses. Of those factors that can influence the quality of feedback or activities in an online course, class size stands out. If the size of the class is, "beyond thirty or so students [one] will find it difficult to operate without the assistance of a teaching assistant (TA) unless you dramatically redesign the class" (Ko & Rossen, 2010, p. 311). There are strategies to help instructors overcome challenges related to class size, but other than changing the entire class's activities, teachers often do not have the authority to control this issue.

Having an education and pedagogical studies background might be helpful to someone when they develop the skills to teach a new online course, but that can be challenging for those instructors who teach courses in content areas other than education or technology. That is where the QM workshops are helpful to faculty who would need additional assistance with their course design and development, but not necessarily with the technological knowledge. In their study of different professional development

experiences for online faculty, Koehler, and colleagues (2004) had six faculty participate in an instructional technology course with master's level students. In order to have enough time to commit to the study, faculty were released from 10 hours of their other duties throughout the semester and were given a stipend and a laptop to facilitate their design practice. Before they did this study, Koehler and colleagues (2004) reported that the process of developing online courses was broken into content and pedagogy, which faculty would provide, and technology, which was supported by technology support specialists. In their study, Koehler and colleagues (2004) observed outstanding improvement in students' experiences when working with faculty to develop courses and meet the learning outcomes. Not only were the master's level students experiencing more authentic learning, but faculty were also developing their technological knowledge, which was also influencing their other domains (pedagogy and content) and "empowering the instructors allows them to have a greater degree of flexibility and control over the design of the course" (Koehler et al., 2004, p. 49).

Conclusion

When shifting to teach an entirely online course or blended course with fewer or no face-to-face interactions between faculty and students, "the rules of face-to-face teaching do not necessarily apply" (Koehler et al., 2004, p. 35), and instructors need to adopt pedagogical approaches that may differ from what they do in the face-to-face classroom. Using rubrics and standards, such as QM and iNACOL, attending workshops on the learning management system and other technology-related professional development opportunities would help faculty get started and have the course

components/contents in place. However, different instructors use various methods to teach their online courses and those methods and techniques may not necessarily be supported by the standards or professional development experiences. Faculty will discover some of the missing components, interactions, and effective pedagogies as they start teaching their online courses, and therefore adopt pedagogical approaches that help them improve the students' learning outcomes. On the other hand, online design and teaching experience coupled with the newly adopted pedagogical approaches, sometimes leads to different pedagogies and design approaches than are used in face-to-face teaching. Even though online teaching and design have improved throughout the years, there is still a high demand for such studies that would also contribute to the tools as standards, such as the QM rubric (Shattuck, 2012).

The review of studies revealed that many different factors influence the quality of online courses. While factors such as student readiness, experience, motivation, time-management, and their responsibilities in and outside of the classroom are important for the students' success (Fetzner, 2013; Hung et al., 2010; Yukselturk & Bulut, 2007), there are minimum standards and expectations that need to be met when it comes to course design and development by the faculty and instructional designers (Hixon et al., 2016). It can also be concluded that when faculty members are given the opportunity to equally develop their technological knowledge, along with their content and pedagogical knowledge (Koehler et al., 2004), they can benefit from a design workshop, which empowers them to control and modify their pedagogy and content in their online courses.

CHAPTER 3

METHODOLOGY

This study utilized a phenomenological approach to understand the faculty challenges, shifts, and growth, including the individual and shared challenges that they encountered while teaching an online course for at least two semesters. Phenomenology is the “people’s lived experience of the situation, or lifeworlds” which can be very specific to the individuals” (Smith, 2015, p. 13). A phenomenological approach was adopted because of the nature of the different experiences that each individual acknowledged (Merleau-Ponty & Smith, 1962). The shared experiences of all the participants in this study include that they were teaching an online course at the same institution, attending a professional development experience to become familiar with the QM rubric, and designing a QM informed online course. According to Cilesiz (2011), phenomenological interviewing and analysis are the most suitable approaches to study the experience with technology based on the individual experiences.

In this chapter, some information is shared regarding this study’s researcher, the research design, the participants, the context of the study, and the research instruments. In addition to the methods and instruments used for data collection, the process of data analysis that consisted of two rounds is discussed in more detail.

Researcher

This researcher is a doctoral candidate who has taught online courses to undergraduate teacher candidates. This researcher has also worked as an instructional designer who offered professional development and learning opportunities for faculty at

different higher education institutions. One of the design thinking models that is commonly used by design management and professional development teams is that, “a designer works with other people on two levels: (1) By understanding users’ perspectives and their needs, and (2) by collaborating with peers” (Dunne & Martin, 2006, p. 519). The first step has also been called inspiration--which includes observations, listening, and gathering information--and empathy, while trying to understand the problem or need. While the words “need” or “gap” can be viewed negatively, a design-thinker looks at them as an inspiration as well as the first step of the design thinking process. “There are three spaces to keep in mind: inspiration, ideation, and implementation. Think of inspiration as the problem or opportunity that motivates the search for solutions” (Brown & Wyatt, 2010, p. 33). The second step is ideation, which consists of many collections of solutions and creative ideas. The third step is implementation, which refers to the application of the solution in real life (Brown & Wyatt, 2010). This study is looking for inspiration by seeking to listen, observe, and empathize, and can be a first step to a more personalized professional development.

Research Questions

This study seeks to determine instructors’ experiences of their technological and pedagogical changes and developments after attending a QM workshop, other institutional workshops, and teaching an online course for at least two semesters. In addition, the researcher aimed to understand faculty members’ perceptions of their own technological and pedagogical growth and determine the challenges they faced after

teaching online courses for at least two semesters. The questions that the researcher sought to answer are:

1. What are instructors' perceptions of the development of their technological, pedagogical, and content knowledge as online instructors after teaching a QM informed course?
2. What are the pedagogical and technological challenges that faculty identified in their online teaching?
3. What resources do instructors use to overcome their learning curves in their online courses?
4. How do instructors make decisions regarding the student interactions within the online courses?

Research Design

The research questions were selected to understand other professional development opportunities that instructors may benefit from, and also to report the best practices that some of the instructors discovered while teaching their online courses for several semesters. In order to enhance the kind of understanding of personal experiences and to be able to apply the design thinking model (Brown & Wyatt, 2010) to the design of those experiences, a phenomenological study was adopted (+

, Beakley, & Ormiston, 1991; Merleau-Ponty & Smith, 1962; Merriam, 2009) to find the answers to the above questions. "To study experiences with technology through phenomenology and based on the phenomenological concept of experience, research methods such as phenomenological interviewing and phenomenal analysis are most

suitable” (Cilesiz, 2011, p. 498). The philosophy of phenomenology is to focus on an experience in order to understand how one has gained consciousness through the experience. “To get at the essence of basic underlying structure of the meaning of an experience the phenomenological interview is the primary method of data collection” (Merriam, 2009, p. 25).

In phenomenological research each case is different, and cases have been affected differently (Lyotard et al., 1991). Kvale (2007) explains the similarities of all the qualitative inquiries in that it intends to approach the world in the field and context as opposed to in the laboratories. The context where the study is conducted influences the results of study and therefore while some qualitative studies may not be replicable, they still indicate some in-depth information that could be gathered in that context. The intention of the phenomenological study is to explain the phenomena from the inside of the context by: (A) analyzing the individual and group’s experiences, (B) analyzing the communication and interaction, and (C) analyzing documents. This study is using the first two approaches to analyze the individual experience through the individual interviews and the communication and interaction to gather more data through the focus group interviews. Through the phenomenological interviews conducted in this study, this researcher seeks to understand the individuals’ experiences adopting a similar framework to design their online courses, while understanding the differences of each individual’s experiences to learn and offer a variety of professional development experiences that support online teaching and learning.

Reliability

One of the reliability concerns in any study is the nature of self-report. The data collection was designed in a way to provide opportunities to confirm themes in the data. For example, one concern in interview-based research is whether the participants give different replies to different interviewers, or different replies to the same questions (Kvale, 2007). To address this concern, some of the questions in this survey were repeated in different ways in the interview protocol. This was done purposefully to understand if the answers to those questions were similar when asked in different settings or formats. For example, the participants were asked in the survey: “Can you identify challenges that you still deal with when teaching a section of your online course?” This question was also repeated in the interview protocol to allow more in-depth discussion of the challenges that the faculty experienced when teaching their online courses. In a phenomenological study, while there is the intention to confirm the themes and phenomena as expressed by every individual, the experience of a participant may be unique to that participant. Also, in order to confirm the findings and establish trustworthiness of the data, multiple data sources were used. The “Triangulation of data combines data drawn from different sources and at different times in different places or from different people,” (Jenner, Flick, Kardorff, & Steinke, 2004, p. 178) and in this study, these sources include a questionnaire, one-to-one interviews, and focus group interviews. Focus groups “at the broadest level are collective conversations or group interviews” (Denzin & Lincoln, 2018, p. 887) In addition to the survey and individual interviews, focus group interviews were conducted for additional data collection in this

study (Marshall & Rossman, 2016). Focus group interviews allowed group conversations where the themes were reviewed for confirmation or objection by the participants.

Context of the Current Study and Participants

A workshop was offered for the faculty at a Midwestern university who planned to teach an online course “Applying the Quality Matters Rubric”. The workshop was facilitated by a QM workshop facilitator who traveled to the campus. During this workshop, faculty learned how to design their courses using the QM rubric. In many cases, the faculty who attended this workshop had previously prepared almost all of the course materials that they use in their face-to-face courses and modified them for an online course. In some cases, however, they designed a completely new course that they had never taught face-to-face before. When attending the workshop, faculty made adjustments to their course materials, activities, assessments, and layout to ensure that their online/blended courses met the course learning outcomes alongside of many other standards that QM requires a course to meet in order to be certified.

After the workshop, the faculty member’s online course design went through an unofficial institutional peer-review process where they worked with instructional development specialists to ensure their course met the Quality Matters standards. When faculty designed the course components, an instructional designer reviewed the components to make sure that the rubric was applied correctly, the course’s expectations were stated clearly, and then the designer worked with the faculty to design the course in the online learning management system (LMS) that the faculty was using (following an adopted institutional layout). Once the materials were edited by the faculty to meet the

QM standards and reviewed by the instructional development specialists, the material was then uploaded to the LMS by the instructional designer, and the courses were offered through the Distance Education department. In some cases, faculty or departments preferred to upload their own components and have a different, more personalized layout for the course, but they still worked with the instructional developers to understand and apply the QM rubric to their courses correctly.

The internal institutional peer review may be conducted differently at different times by different campuses. The reason that they are called unofficial peer reviews in this study is that the official peer review process consists of three other reviewers who have successfully completed training through the QM program (MarylandOnline, 2017). However, the review process at this selected institution was done by instructional designers who have experienced several QM workshops and instructional design practice workshops, but may not necessarily be a part of the official QM review process. The instructional design specialists and/or instructional developers who reviewed the course against the QM rubric all had the appropriate training and understanding of instructional design and online course development, and had some QM training as well.

Participants of this study include full-time, part-time, and adjunct faculty who have taught for-credit online courses at the same Midwestern university for at least two semesters and who had attended one or more Quality Matters workshops offered by the Quality Matters Program. All of the online faculty, full-time and part-time alike, first received an email with a brief description of the study and were invited to complete a survey if they had taught an online course for at least two semesters. In that survey, they

were asked if they had designed their course after taking any kind of professional development such as QM or other professional development. They were also asked to specify if the course they taught was QM informed, QM certified, or whether they had used their own experiences and other professional development or standards to design their courses.

Overall 30 faculty participated in the survey: 26 out of 30 participants indicated that they taught their online course during the current year (2017). Twenty four out of 30 participants indicated that they had participated in at least one QM workshop before they designed their courses. One participant indicated that their course was QM certified meaning that they have undergone the official QM peer review. Sixteen of the 30 faculty indicated that they had used the QM rubric and workshop to design their courses. Thirteen survey participants provided their contact information, but only 10 out of those 13 met the criteria to be interviewed. The criteria were to have attended at least one QM workshop to learn how to apply the QM rubric, have a QM informed online course design, and taught their online course for at least two semesters. The 10 eligible participants were contacted to be interviewed from which eight participants responded.

Among those full-time, tenure-track, and part-time faculty who taught online courses for at least two semesters, eight faculty members were selected specifically based on their consent to have an in-depth interview. An in-depth interview consists of a conversation format with a purpose (Kvale, 1996; Ritchie & Lewis, 2003). Those who did not complete a QM training, or did not have at least two semesters online teaching

experience were not selected. The table below includes more specific information regarding participants.

Table 1

Participant Information

Name	Number of semesters teaching an online course	Major/Content	Full-time Tenured or Tenure track (F) /Part-time or adjunct (P)	QM or other workshop experiences*
Dr. Strange	20+	Instructional Technology	F	1. Applying the QM Rubric 2. Peer-Reviewer 3. Designing Your Online Course
Nick	3	Psychology	F	1. Applying the QM Rubric
Sam	10+	Health Promotion	F	1. Applying the QM Rubric
Monica	7	School Library Studies	F	1. Applying the QM Rubric 2. Designing Your Online Course
Sarah	17	Education	P	1. Applying the QM Rubric 2. Peer-Reviewer
Amber	14+	Elementary Education, Research Projects	F	1. Applying the QM Rubric
Vicki	3+	Business Communication	F	1. Applying the QM Rubric 2. Peer-Reviewer 3. Designing Your Online Course
Probo c	14+	Educational Research/Statistic	F	1. Applying the QM Rubric and Instruction Design Experience

*The accuracy of training listed here was documented through the interview instead of the self-report survey.

Instruments

A survey was conducted to select participants who had experienced teaching an online course for at least two semesters and who had attended at least one professional development event related to the design of their online courses. The main method of data collection was through the individual interviews with participants whose course designs were QM informed (Merriam, 2009). Two focus group interviews were also conducted for member-checking and validating the themes that emerged from the first interviews. Focus group interviews were used to validate the common themes, as have been stated in Barbour, 2007:

A focus group interview is an intriguing hybrid term and suggests, at least to me, that the object of the experience is to interview a group which is seen as holding a consensus view rather than the process of creating this consensus via interaction in the focus group discussion.” (p. 2)

The focus group questions in this study consisted of quotes from the interviews. To initiate the conversation, some open-ended questions were posed by the researcher, such as “to what extent do you agree/disagree with that...” or “did you come to a similar conclusion like that drawn from the first interview’s analysis?” The questions were based on conclusions drawn from the themes of the first-round survey and interview analysis and all the conversations in the focus group regarding different themes were ended with: *does anyone want to share additional thoughts?*

Two focus group interviews were conducted online and everyone in the focus group was given a chance to share their ideas regarding the expressed themes and then communicate if they agreed or disagreed, or had any other thoughts. After every individual disclosed their thoughts regarding the questions and statements, there was an

additional chance for more group conversation and discussion. An online interview format was selected for the focus group for at least two reasons: (1) when the interview was conducted through Zoom, the quality of everyone's voice was equally good for the interview purpose and (2) those who were concerned about their identity were able to login with a pseudonym that was assigned to them by the researcher. That anonymity could provide a safer environment for sharing their personal ideas if they did not agree with others.

One of the interview participants (Probosc) did not respond to the invitation emails that were sent out to attend one of the focus group interviews, but because he had participated in the survey and the in-depth interview that were analyzed before the focus group interview, his input had influenced the way that data were coded and the focus group questions were shaped. Therefore, quotes from his interview and survey responses that resulted in shaping some of the most repeated themes were used in this study's findings and analysis.

Review of Previous Survey and Interview Instruments

QM rubric. Several tools were considered for survey and interview protocols. Ralston-Berg, Buckenmeyer, Barczyk, and Hixon (2015) used a four-point Likert scale survey based on the Quality Matters 2008-2010 standards rubric to study student perspectives of what makes a quality online course. In their survey, they asked students to rank the specific QM standards based on what they felt was important to them. For this survey, the QM standards were rewritten in a way that included more student-centric language. The purpose of using this survey was to understand students' perceptions of

what standards are important to their learning. The results of that survey could also be a useful tool for understanding teachers' perceptions of important QM standards, but the focus of this current study is beyond QM and online course design; therefore, it would have been limiting to only focus on aspects of the QM rubric that faculty thought were important. Therefore, this survey was not used.

TPACK survey and interview instruments. Although it is not easy to evaluate faculty members' technological, pedagogical, and content knowledge, there are a number of instruments that allow for self-evaluation and tools that facilitate evaluation of faculty's TPACK. A rubric was created and used in order to analyze interview questions of the self-evaluation of one's TPACK knowledge. It was validated by Harris, Grandgenett, and Hofer (2012), and these interviews and rubric are available in the public domain under Creative Commons licensing. This specific TPACK knowledge analysis tool was not adopted for this study due to the fact that the focus of the interview questions and the tool are to assess one's TPACK knowledge, and the aim of this study is mainly on how the technology integration fits the learning goals, pedagogy, and content. While faculty members' technological, pedagogical, and content knowledge may influence their online teaching practices, it may not necessarily assist the researcher in understanding the faculty's challenges in the online course delivery.

Another related survey found in the literature resources was authored by Pamuk, Ergun, Cakir, Yilmaz, and Ayas (2015). This survey allows researchers to explore relationships among various TPACK components, and explore the participants' development of the TPACK. The survey has 37 four-point Likert-type questions aligned

with the TPACK constructs. This survey is a self-reporting tool; however, it is focused on teachers' technological, pedagogical, and content knowledge, before and after an intervention. Since this current study was not a longitudinal study and there was no intervention as a matter of the study, and because the faculty who participated in this study had participated in the interventions in different times and with different workshop facilitators, this survey was not adopted.

Research Tools and Data Collection

Survey Development

For this study, the researcher created a survey with 15 questions--one yes/no question, four multiple choice questions including an "other" option, and 10 open-ended questions. Additionally, the last page of the survey invited the participants to enter their names and contact information if they were interested in participating in two follow-up interviews. The survey questions were reviewed and validated against the research questions by three other professionals--an instructional developer who had helped faculty in the past with their online course developments in the same higher education institution, a full-time faculty member who did not teach any online courses, and a part-time adjunct faculty member who was teaching online courses at that same institution.

Survey Technology

The survey instrument was created using Google Forms, for which the researcher was able to add some restrictions and rules for participation. Two of the participation rules were that the person who was taking the survey was required to log-in to the form

using their university-allocated email, and anyone using their institutional email address could only participate once.

These rules proved to be very helpful, because in one case a faculty member shared the link with a colleague from outside of the institution in order to help the researcher find more participants and bring in those who might be interested in the topic. The outside faculty member was not able to access the survey. If this study was done on a larger scale where participants could be recruited from different institutions or all over the world, those limitations would not have been necessary. However, because the researcher in this study was focused on a smaller group, the rules applied to the survey link were helpful in ensuring that the collected responses only came from the group that was intended. Google survey tools also allowed the participants to see how many more questions were left for them to answer.

On the first page of the survey faculty read the consent statement and had access to the researcher contact information for possible questions (See Appendix G). The last page of the survey included optional questions asking the survey-takers if they would agree to two additional interviews within two to four months after the survey. If so, they were asked to include their names, contact information, and any additional information they wished the researcher to know (for example, if they preferred to be contacted by mail or phone call, or if they had a specific day/time they would like to request for the interviews). If the faculty member completing the survey chose not to answer these questions, the survey could be submitted anonymously (See Appendix H).

Survey Process

After IRB approval, the survey was sent out to the designated department leaders or their administrative assistants, requesting that they either send the survey to the faculty who teach online courses, or to all of the faculty in their departments. The email that was sent to the faculty specified that they could participate only if they were full-time or part-time faculty who had been teaching an online course for at least two semesters. The researcher also drafted a message to be sent to the faculty by the department leaders (See Appendix D). A message was also included to be sent out to the faculty by the department leaders (See Appendix E).

The researcher also sent an email to those who offered their courses through the distance learning office at the same university, where most of the institution's online programs are offered. A direct email invitation was sent to those faculty using the IRB approved message with a link to the survey. The message that was sent to the online faculty directly by the researcher can be found in (See Appendix F).

Interviews

The interviews were conducted with eight out of 13 selected individuals who agreed to participate and provided their contact information. The criteria used to select those individuals were that they had taught an online course at the selected institution for at least two semesters, and that their course design was at least QM informed if not certified. Open-ended interview questions were selected to allow the researcher to hear what the participants had to say about their settings (Creswell, 2013). This study adopted an open-ended, semi-structured interview protocol. "A semi structured interview attempts

to understand themes of the lived world from the subjects' own perspectives" (Kvale, 2007, p. 10). A semi-structured interview is designed to understand and interpret the interviewees' lived experience of the phenomena, which is teaching online courses that are QM informed for two or more semesters. The types of questions were: (A) experience and behavior, (B) knowledge questions, (C) sensory questions, and (D) background and demographic questions (Merriam, 2009; See Appendix B for interview protocol). In the selection of the interview questions for this study, a pool of many questions was narrowed down to find questions that would deduce the best answer(s) to the primary research questions. The questions were reviewed by other colleagues, an instructional designer, and a part-time faculty who teaches online courses, to ensure that they were not driving the interviewees to answer the questions in certain ways and to be validated against the research questions. The interviews were conducted both online and face-to-face. Overall, two individual interviews were conducted online using the Zoom videoconferencing software, and six interviews were conducted face-to-face. It was interesting to note that most of the participants opted for a face-to-face interview.

After the individual interviews were coded and analyzed, two focus group interviews were also conducted online--one with three participants and one with four, and the researcher. The questions in the focus group were designed in the same format as the interview questions--semi-structured and open ended. However, some of the themes and quotes from the individual interviews were selected and read to the participants to understand the group thoughts and ideas.

Data Analysis – Part 1

Survey and Interviews

All interviews were recorded with the consent of the participants, followed by transcription and coding. Transcription was completed with attention to content and minimal focus on paralinguistic elements because the focus of the study was on participants' perspective and experiences. Extensive pausing and hedging, such as “uh...um...” or “well, that’s not to say that I would/would not...” were noted as possible points to consider for further investigation in analysis.

Open coding was then selected to interpret the survey and interview data (Corbin & Strauss, 1990). In this process, the researcher was looking for any emerging themes and was taking note of the most relevant themes while keeping the research questions in mind. The codes were divided into broader themes until each code could only fit in one major theme. Both direct quotes from the transcripts and survey responses as well as the researchers' interpretation of the answers were used for coding. During early review of the interview questions with a peer, some questions from the survey were repeated to identify trends and confirm the answers. NVivo was used to support the analysis; this tool allows the researcher to upload and organize the data, code, and categorize the codes to the selected themes. This tool also allows counting the number of times a code was used with a link to the original interview, or other data where it was referenced (See Appendix K).

Focus Groups

After initial transcription and coding, participating faculty were invited to an additional interview as a group to confirm the trends/patterns identified in the preliminary coding and data analysis. This focus group interview facilitated “planning to take [the] interpretation back to [the] respondents” (Richards, 2015, p. 28) and allowed another chance for the participants to assess the researcher’s understanding of their intentions in the previous conversations explicitly. The focus group interviews included some of the analysis of the researcher’s interpretation of the participants’ first interview, and in this meeting, direct quotes from the interviewees were addressed to member-check and assure that the quote was used or interpreted correctly. Because all of the participants were not available to meet at the same time, two separate focus group interviews were conducted in an online format and were recorded using Zoom. One focus group was conducted with three participants and one with four participants in addition to the researcher. Only one participant who had attended the first interviews did not reply to the focus group meeting request.

During the Zoom focus group meetings, participants used pseudonyms. If they happened to log in using their real name, the researcher changed their name to a pseudonym that was communicated to them. All but one person had their camera turned off. The participants were asked to avoid divulging their own or each other's identity (if they happen to recognize each other's voices), in order to maintain the integrity of the study. Protecting the confidentiality of those concerned allowed participants to accurately and openly share their ideas, even if they did not agree with each other's statements. In

order to allow every participant to share their ideas, the researcher asked the interviewees to take turns communicating their thoughts about the questions and quotes that were provided. Once a question and/or quote was read by the researcher, each person had up to one and a half minutes to respond until everyone had shared their ideas. Once everyone shared their ideas, they all could respond by adding other thoughts and noting agreement or disagreement, either by using the text chat in the online meeting or by speaking. The researcher also asked the participants to freely add ideas in a follow-up email if they thought of something they had not shared in the meeting. The focus group interviews were later transcribed to help validate existing themes and to understand additional themes that emerged from the group conversation. During the focus group interview, the consent statement was read to the interview participants and they agreed to participate and be recorded (See Appendix I).

Data Analysis – Part 2

Recording Interviews

“Methods of recording interviews for documentation and later analysis includes audiotape recording, videotape recording, note taking, and remembering” (Kvale, 2007, p. 93). The interviews were recorded with both video and audio recorded on two separate computer devices for transcribing purposes using Zoom (video/conference call and recording tool) and GarageBand (audio recording/editing tool). The researcher also took notes of potential themes that stood out to her while the interviews were conducted. She asked for clarification and examples, and observed course evidences when the participants were willing to share. For example, when Dr. Strange was talking about the

additional tools that he was using to engage students in peer interactions, he showed his phone and some of the messages that his students had sent to the shared group in a tool called Voxer which included voice and video chat among the students (Dr. Strange, First interview, June 15, 2017). Observing and understanding the tools that faculty mentioned they were using helped the researcher's understanding of the tool, if she already did not know about it.

Before the first interview, the researcher had reviewed the participants' individual replies to the survey questions to ask more relevant questions from the interview protocol. For example, if they had indicated that they did not teach any face-to-face courses, the researcher did not ask questions regarding the impact of the QM design rubric and experience in their face-to-face courses.

Most of the participants preferred meeting face-to-face. Only two interviews were conducted online; one was the participant's preferred method and the other one was because of the timeline and the fact that online interviewing was the best mode that could work for both researcher and the interviewee.

Transcribing, Coding and Analyzing the Interviews

The transcribing details depend on the nature of the materials, and the purpose of the study. "Correspondingly, the questions 'what is the valid transcription?' cannot be answered- there is no objective transformation from oral to the written mode" (Kvale, 2007, p. 98). In this study, the focus was on people's experiences, the stories they shared, and their thoughts regarding their challenges and solutions that they adopted to overcome those challenges. Transcribing and only relying on the transcribed notes was not enough

to extract the themes. The researcher tried to increase the reliability of the transcripts by securing the quality of the sound recording by having two sets of recordings, including the video and audio recorded documents for transcribing purposes (Kvale, 2007). During the interviews, she also took notes of new themes that appeared in the conversations. One of the limitations of transcribing is the validity of transcribing oral to written conversation. In many cases the researcher realized that in the video and the audio recording the message is conveyed clearly. However, because the interviewees did not finish their sentences or shared several different ideas in one long sentence, the transcribed document is less fluid or clear than the video/audio. Here, NVivo, the data analysis software was only used in this study for coding and organizing the survey data that resulted in codes and themes. Using this software helped organize the themes from the interview and survey data but the analysis of the codes into the themes was done completely manually. Using this software was crucial to organize a large amount of data (134 codes and the relevant quotes) but the manual categorizing was done for a more meaningful analysis purpose. While analyzing the transcripts, the focus of the research was on the meaning but not the linguistic form. Meaning coding includes attaching keywords to the different portions of the text. Also for the pre-focus group analysis the “meaning condensation” approach was used, meaning that the statements were compressed to express the main ideas (Kvale, 2007, p. 106).

NVivo allowed transcribing to be done within the software, which means that the researcher can upload the video and transcribe it within the software. However, in this study the researcher chose to employ YouTube, because the shortcut keys and text

recognition feature in some cases sped up the transcribing process into half the time that any other tool would take. Also, YouTube provided the time stamp for every few minutes of the transcribed text. Some of the time stamps were removed to keep the text in paragraph and more complete sentence format for transcribing. The timestamps used in the transcribed texts are either beats or minutes which allowed the researcher to look back at the specific interview recording if needed.

As stated in Kvale (2007), and Merriam (2009), data analysis software allows for organizing the data and coding and categorizing in a more systematic manner; however, the software will not analyze or code the data. It is the researcher's job to code and analyze the data in a systematic way.

The researcher first started coding the individual survey responses and interviews inductively. "Coding is nothing more than assigning some sort of shorthand designation to various aspects of your data so that you can easily retrieve specific pieces of the data" (Merriam, 2009, p. 173). By adding as many keywords and codes that could define what had been discussed in all the interviews, there were some emerging themes in the interviews including some similarly categorized and some very different experiences. Merriam (2009) describes data analysis, as a process through which we make sense of our data by consolidating and reducing the findings to meaningful understandings. One hundred and thirty-four codes were initially included, with labels such as: team-work interaction, ongoing change to the class, teaching challenges, design challenges and more. The codes were then consolidated into four major categories and six minor-categories relevant to the purpose of the study by making sure that they were relevant to

the research questions and mutually exclusive. For example, code assessing teaching linked to formative assessment because this meant that the categories were divided so that the codes could only fit into one category (Merriam, 2009).

When the initial interview transcripts were coded, some of the themes that were repeated more often than the others listed were selected for the focus group interview. The repeated themes were formative assessment, challenges of online interaction and communication, online modality challenges, and professional development.

For the focus group interview, which was a member-check that allows the researcher “to take the result and interpretation of the data back to the participants” (Richards, 2015, p. 28), the researcher asked questions regarding the themes and subthemes that had appeared to be the most repetitive. Participants were read up to three or four paraphrased quotes, along with the researcher’s interpretation of those quotes that shaped the themes. Then participants had the time to share to what extent they agreed or disagreed with the theme, add additional thoughts, and finally, discuss it further as a group.

The two focus group interviews were then transcribed and were coded as well, and this time the codes mostly appeared to belong to the defined themes. However, during the focus group interviews some additional ideas appeared that will be reported separately in Chapter 4. Findings are reported based on the themes that have appeared more often in the analysis of the data.

Conclusion

For this study's analysis purpose, NVivo was selected because it allowed the researcher to import the data collected in the different formats, including the Google spreadsheets with the survey results. The documents and data then could be manually organized into case-files to be coded. While reading an interview, one can highlight and code the sentences adding a new code or add the sentence to one of the existing codes.

Another way to view the coded data is to review them in the Node section of NVivo where the codes are listed with the number of times they were repeated and a link to the file/document where the interviewee's responses have shaped the codes. The Nodes then can be categorized to bigger categories which helps organizing the ideas in a systematic approach. The most common themes that appeared in more interviews are listed under the relevant themes in Chapter 4 of this study. In this reflective phenomenological research, the findings are categorized by the emerging themes.

Chapter 4 reports the research findings organized by the themes that appeared to be repeated more often and their relevance to the research questions. Some other themes also were reported as they stood out to the researcher because of the setting and the sensitivity in which it was expressed.

CHAPTER 4

RESEARCH FINDINGS

Introduction

Understanding the challenges that faculty members faced when they started to teach their online courses and the solutions they found to overcome those obstacles was one of the goals of this study. This study also aimed to understand the problems, and technological or pedagogical issues that faculty identified after teaching an online course for a few semesters. The above goals were only identified to offer possible solutions drawn from the experience of the participating faculty to support other practitioners. Faculty perceptions of their own technological and pedagogical development from teaching online courses, and the influence of their online teaching experience and TPACK knowledge on their online teaching was another scope of this study.

The results of this research will inform decisions regarding professional development opportunities offered for online teaching faculty. It will also help improve academic technology, and assist service providers in offering solutions to the challenges that faculty members continue to face after teaching online classes for more than two semesters. This researcher aimed to understand the current state of online teaching and learning, as well as the pedagogical and technological challenges in a Midwestern university. This study also offers some applicable ideas for future professional development trainings, development of online courses, and possible resources that could benefit faculty who teach online courses. The four questions this study sought to answer are listed below:

1. What are instructors' perceptions of the development of their technological, pedagogical, and content knowledge as online instructors after teaching a QM informed course?
2. What are the pedagogical and technological challenges that faculty identified in their online teaching?
3. What resources do instructors use to overcome their learning curves in their online courses?
4. How do instructors make decisions regarding the student interactions within the online courses?

The themes addressed in this chapter are connected to the four research questions.

While these themes are broader than the questions, the questions have been addressed within the different themes. For example: the instructor's perception of their TPACK development after teaching an online course has been addressed in the online modality challenges and the sub-themes and across some other themes. The pedagogical and technological challenges are listed under both assessment and online modality challenges. The resources that instructors use to overcome their learning curves are listed under professional development, and most of the challenges and decisions instructors make regarding the student interactions had been addressed under the challenges of online interaction and communication.

Findings Organized by the Most Common Themes

The themes in this section were informed by the survey data and coded interviews and focus groups. In this chapter, the survey will be discussed as background to the

interview data. Then, the four major themes and six subthemes will be explored with illustrative examples drawn from these data. A table found in Appendix K also illustrates a few examples regarding how the themes were shaped out of the data.

Insights from the Survey

Based on the survey results, the times in which participants of this study had attended Quality Matters workshops spanned the last six years. Every participant who was selected for the interview had attended the first workshop which was *Applying the Quality Matters Rubric* and their courses had undergone some peer-review process. However, not all the courses were Quality Matters certified, where the course goes through an official QM peer-review process. Those who were selected for the interview also had reported that they had taught their online courses for at least two semesters. Out of 30 survey participants, 18 had indicated they had some sort of teaching methods training or courses tied to their previous educational studies. When asked whether they had made any changes to their online courses after the first semester that it was offered, 27 out of 30 answered yes, and many indicated that they were constantly applying changes to their online courses.

Some of the pedagogical challenges and shifts reported in the survey were: (A) Simplifying material and providing more detailed or clear instructions in different formats, (B) sending reminders to students, (C) finding it difficult to develop relationships with students in on-line courses, (D) addressing several different objectives through one assignment, (E) having to have everything prepared and ready for the students in a timely manner ahead of time, (F) trying to generate quality discussion , and

(G) getting students to read. When they were asked about some of the challenges that they are still facing when teaching their online courses, lack of interaction with students and personalizing instruction, providing timely feedback, and getting students engaged in the discussions were most repeated themes.

A review of the survey data revealed that out of 30 survey participants, 80% (24 faculty members) have had QM training. However, 11 faculty members who completed the survey indicated that their course design is not QM informed, and that they use their own experience and other resources to design their online courses. Out of 30 faculty who had taught online for at least two semesters, 13 agreed to participate in the further interviews. From the 13 faculty members who agreed to participate, 10 indicated that their course is QM informed and that they had attended the QM workshop. After contacting the 10 faculty members who volunteered to participate in the study, eight of them replied in a timely manner and agreed to participate in in-depth interviews. The eight candidates were interviewed individually and interviews were transcribed, coded, and analyzed for the common themes before the participants were contacted again for the focus group interviews. Seven out of eight faculty who participated in an in-depth individual interview agreed to participate in the focus group interview.

Insights from Interviews

When participants of this study were asked the reasons that they started teaching online the answers were: (A) our department wanted to offer an online program and I wanted to be a part of it, (B) there are students who can only take online courses, and (C) an additional stipend is offered to the faculty for going through the QM workshop, and

designing and offering their courses through the distance education programs. One of the participants was hired to teach in a program that was only offered online. Those who received a stipend and offered their courses through the distance learning had to turn in their course components to an instructional developer and let them set up the course in the learning management system for them. They believed this was the tradition of the distance learning office to keep all the course designs consistent.

Even though some common experiences such as QM workshops and instructional development support were shared within and between the participants of the study, the findings revealed that each individual had unique experiences to share about teaching their online courses. The researcher was focused on understanding teachers' pedagogical and technological growth through the examples of challenges they faced and solutions that they adopted to overcome those challenges. In most cases there were dramatic growth and adaptations reported in their practices. The researcher had taught her own online course before, attended QM workshops and had helped other faculty who teach online courses design to implement their online courses in the past; however, there were many new, interesting insights that faculty articulated in this study.

The interviews were transcribed and were coded in a software (NVivo), and the codes then were assigned to broader themes. Some of the major and minor themes from interviews and focus groups that repeated more often than the other ones, or stood out in the conversations are listed below.

Theme A. Formative Assessment

Formative assessment, in this study, referred to the different ways that faculty evaluated the students' learning, the feedback they provided to their students, and the data that they used to make adjustments to their own teaching and course design. This theme was prevalent across the survey, interviews and the focus group sessions. Two subthemes were teased out of the larger category: (A1.) assessment as teaching and (A.2.) assessment of learning. Assessment issues were raised in the many interviews. In the first individual interview (June 12, 2017) Sarah said "I don't have the luxury of going deeper to ask them what their thinking process was, so I just... you know... grade them the way I think it should be, but it may or may not be fair" (Sarah, first interview, June 13, 2017). Sarah, Vicki, Monica and Dr. Strange indicated how it is important to have formative assessments throughout the semester that would tell you how well students are doing, but the assessment in the online courses are limited to more formal grading or testing without knowing much about what is going on in the student's life. Sometimes students are good about communicating the problems or if they do not understand something, but sometimes "they don't know what they don't know" (Vicki- first interview). Amber stated in her first interview that sometimes, in order to follow the QM rubric and instructional developer's advice, she believes she is doing too much grading and assessment in the online courses that she normally would not do in the face-to-face courses (June 16, 2017). Amber also addressed some discussion board grading is based on the rubric rather than overall participation and that can become burdensome (June 16, 2017). Vicki believed that assessment probably is more formal in the online courses

while it is more informal in the face-to-face design (Vicki's first interview, June 14, 2015). It appeared that while there are opportunities for the faculty to have different student assessment opportunities in the online courses, some believed that they were more limited to the grading in the online courses.

A.1. Assessment as teaching. Assessment as teaching was identified as a subtheme because the quotes and data in this subtheme indicated faculty's assessment of their own teaching that resulted in changes they made to their online courses. Some of this assessment was done formatively based on the students' performance or grade, and some was done independently through reflection and experience. For example, Vicki pointed out that she had made some changes to the timeline that she had for an assignment when she taught for the first semester after she realized that some students had not even logged into eLearning while others were getting their work done and getting ready for the next task or assignment that they needed to do. She also believed that teaching online opened her eyes to many assessment tools that she can use:

It's so invisible in face-to-face, when you make it online you have to make the assessment explicit, and you have to think about what that test is doing. You have to think about what's the feedback you're going to give on that test, and what's the answer you're going to give you know... (Vicki, first interview, June 14, 2017)

Dr. Strange talked about how he is trying to make adjustments. Even though the course is almost completely prepared before the semester starts, he sometimes records some instruction or writes down additional instructions that he emails to his students during the semester. Probosc also indicated that he makes the adjustments to the online course as he would do in the face-to-face classes.

I do adjust my face-to-face classes and I also do adjust online class too. So, if something didn't work, then you know, ... I can put something else, or if we've already hit the bottom on something, you know... I sometimes say; hey let's skip this next assignment because it's like you already got it or I can add materials we can redo things. (Probosc, first interview, June 14, 2017)

Nick (first interview, June 15, 2017) believed assessment sometimes can be more formative in the online courses:

Because each individual student is responding to writing prompts. I see errors, conceptual errors, more readily. Because I don't individually speak with students face-to-face. However, to respond to all of them, is just not feasible. So, potentially, it suggests well, if you see a lot of the people making the same conceptual errors, or if there was a technical error, you could change you teaching to have like a warning or alert students of, 'Hey, a lot of people think this way, but actually it's this...' Perhaps that's the one advantage of teaching online. you sort of get that outside of exams. (Nick, first interview, June 15, 2017)

In both focus group interviews, everyone agreed that assessment in online courses is more limited to the grades that students are receiving. Amber commented “we probably have more formative assessment opportunities in the online courses, however some of it may not be necessary to be graded” (First focus group, August 22, 2017). Amber also shared the burden she went through to create rubrics for every assignment that she did not necessarily grade in the face-to-face courses. The first focus group interview concluded that the number of students enrolled in an online course will influence the quality of formative assessment and feedback.

A.2. Assessment of learning. The second subtheme, assessment of learning, is important because it indicates the way that participating faculty were grading or providing feedback to their students in the online courses. This subtheme emerged based on some of the challenges that were alluded to by several faculty in the interviews and survey analysis. When asked in the survey about the challenges that they still encounter,

10 out of 30 faculty indicated that providing timely feedback and grading assignments is still one of their challenges. “Providing adequate and timely feedback - everything takes longer and requires more detail online” (Anonymous, survey results, June 2017). Timely feedback was a common theme in interviews as well. Dr. Strange said he is still working on getting better at giving timely feedback to his students – not only grades – so his students understand what they did or did not do well. He also shared that he tries to check in with all the students and once in a while he checks the quizzes and student process in the Learning Management System (LMS). If he realizes that they have not logged in or have not done some of the required activities, he sends them an email using the LMS and makes sure to keep in touch with them. Vicki leveraged some technological options in the LMS to allow a self-paced process in one of her courses:

Now there is a lot added, in the sense that they have these learning checks all the way through, and because they can't go forward even though I'm not actually evaluating it, what I can see by looking at them is that they're stuck at a certain place. Because I can see if the adaptive release has gone through. (Vicki, first interview, June 14, 2017)

Sarah also addressed that she uses the student's data in the LMS retention center;

In Blackboard, that we use for our e-learning, we have this retention center that's been very helpful with that regard. It tells me if they have not logged into the course for a long time, or if they have missed assignment, or the participation is low. It has different criteria that would notify me also, you know, in Grade Center because we have projects and we have quizzes and if I see that the quiz scores are low that would give me another sign. You know...that's another red flag for me, to see ‘okay, there's something wrong’ that I need to follow up with the student. Blackboard allows me to email particular students from both retention center and Grade Center, so as soon as I see something is wrong, I'd say: ‘Hey, I noticed that you haven't logged into the course for five days. What's going on?’ (Sarah, first interview, June 13, 2017).

She used this information to understand if students are spending enough time in the course. Sarah explained that earlier in the semester when students realize she can actually track their progress, they seem to spend more time on the course materials.

Theme B. Challenges of Online Interaction and Communication

A second theme drawn from multiple participants and data sources was the challenge of online interaction and communication with and among students. Challenges in this case include the interactions between the teacher-students, students-students, and student-teachers. While the challenges are addressed as the major theme, some of the solutions to the communication problems are also indicated here. However, an overview of the challenges addressed by many instructors revealed that communication and interaction in online courses is not easy. Sarah, Sam, and Amber disliked the fact that they could not recognize their students or remember their names because of the online interactions. Some of the adjustments that they tried to make were to ask them to upload a photo of themselves, however, sometimes as Amber stated below, the student's picture was not very helpful.

I can't recognize them from the one picture they send me. You know, they send me often a wedding picture or who knows. I specify, this photo has to show your face because I had a whole bunch of students sent me pictures where they're looking away, or it was just part of their face, and... I don't know, but still..., at their graduation, I didn't know who they were. I know it was embarrassing. I felt bad about it because... even though they announced names at the graduation ceremony, by the time they get over to where you might shake hands so many other people have come through, I don't know who is who, and you know I'd like to be able to talk to them.
(Amber, first interview, June 16, 2017)

Sarah also said that she always liked to learn her students' names and it does not happen in the online courses. She thought adding a video introduction at the beginning of the semester helped it become more "humanized."

I change the introduction from a written format which was a discussion board to a video format which is called VoiceThread and you're familiar with that. It made the course a lot more humanized because you know, a text-based introduction is not as personal and usually the pictures they put are not very realistic. (Sarah, first interview, June 13, 2017)

Now, she recognizes some of her students when meeting them on campus (Sarah, first interview, June 13, 2017). Sam knew and spent a lot of time talking or having informal conversations with his students when they were on campus. He had tried providing the opportunity to meet with his online students but the students do not seem to take advantage of the opportunity or like to put additional effort to what they need to do for the class to meet with the instructor or each other. Sam stated:

I saw a student at lunch today who had taken a class with me last semester, we had a nice conversation. I know the students appreciate that attentiveness and it's not insincere on my part. I really do care about the students but there it's really hard. I find it's very difficult to develop that with online education and I actually find that even when I make attempts, students aren't that enthusiastic about having that burden placed upon them in addition to their schoolwork to do something to permit me to know better so actually kind of an intrusion. Some of them may like online education. (Sam, first interview, June 12, 2017)

Monica did not indicate any problem regarding recognizing her students, as she teaches entirely online. She said they were spending a lot of the first week activities on informal "chit-chats" and getting to know each other. Dr. Strange and Monica both revealed that all their students meet synchronously once a week and they also have opportunity to meet online with the instructors. Monica and Dr. Strange were the only instructors who had

weekly synchronous meetings with their students and they thought the meetings were a very important component of their courses because it makes their course very similar to a face-to-face course. Dr. Strange also gave the researcher a tour of a third-party application that his students were using: a back-channel and ongoing discussion that was not in their Learning Management System (LMS). This researcher was able to observe many students in the group chat, sharing links to video, typed, or audio to communicate with one another, ask questions or share their thoughts.

Theme C. Online Modality Challenges

The online challenges shared by most of the faculty members were divided into four minor categories. These were technological challenges, the LMS and improvements, design challenges, and challenges of teaching online. These challenges, labeled C.1. through C.4., are discussed below.

C.1. Technological challenges and improvements. Some of the challenges that Probosc and Dr. Strange addressed were the old-fashioned technology that they had to use in the past. They believed that the new technology had helped overcome a lot of those technical difficulties.

At the beginning the problem was the technology. Now it's not a problem anymore or it's a very small problem. But it used to be a problem before like, oh my gosh, how can I get this to work, and the system is down. Now it's pretty... so you don't have to worry about it too much. Now we've got people like [name of student] who are down in another city, sitting in a parking lot using their phone to communicate [through Zoom]. You know that's an ability to communicate around the world that we didn't have before. (Dr. Strange, first interview, June 15, 2017)

Monica thought that, at the beginning, learning about the LMS was a challenge:

(laughter) I think, I think Blackboard is not intuitive. So, for me the platform that we used was the challenging part and having to learn what I was teaching. You

know... I know the subject area but getting familiar with the class while also having the extra layer, or manipulating the tools, I think was difficult. (Monica, first interview, June 13, 2017)

Amber thought even the devices that students were using or simple skills like cropping an image was a challenge for her students when she started teaching online:

Cell phone cameras were horrible, people would, it would be just a big out-of-focus thing so I would say 'well, you know you're going to have to have a distance there and then you'll have a small object and then you have to crop it.' (Amber, first interview, June 16, 2017)

Vicki thought that the challenge was the capability of the LMS, not a real learning curve, because she had to replace the LMS with other tools that support students' peer-review.

Letting students do peer review in LMS, I don't think was as much learning curve as it was technology capability. I've now, this year, been trying to learn all the different types of quizzes - the putting together quizzes online with something other than multiple-choice - it is definitely a learning curve. (Vicki, first interview, June 14, 2017)

Vicki had adopted other technologies that supported her activity type, after she found that the LMS was not the best tool for peer-review activities. While Vicki was critical of some of the LMS capabilities, in her first interview she shared that she was still learning the other features of the learning management system that could support the other activities, such as quizzes, self-paced and automated release options in that same LMS.

C.2. Learning management system (LMS). Sam recorded some PowerPoint presentations for the online students but he preferred to meet them face-to-face and on campus "if they can." He stated that he did not like using the gradebook, and sends the grades using the student identification number (ID) and the student's grade in a spreadsheet via email. He reported that one of his students expected to see her grades on

the gradebook, but he had told the class that he will keep them informed about their grade but will not use the gradebook for that purpose. Sam seemed to have developed some technological abilities that helped him design his online course, but he was not as comfortable using all the other tools in the LMS or other technology, like Zoom or Adobe Connect that were used instead of on-campus meetings.

Nick was very critical of the LMS that was used on campus. He thought the discussion boards were outdated and limited. He said:

The discussions whereas in a classroom we get into small group discussions, which I have a lot of students get into small groups, they discuss. I can come and enter one of those small groups, basically, and communicate with all students simultaneously. On a discussion board the communication, although it appears that it's group based, it's really one-on-one. People post something. Unless they're instructed to, it's usually not a response to someone else. What somebody else has posted. If it is, their response is to a single post. There really isn't any group based discussion. There's not a discussion on a discussion board like a discussion in person. So, I think that's really the biggest challenge. (Nick, first interview, June 15, 2017)

Sarah encouraged her students to post course-related questions into the discussion board because everyone can subscribe and receive updates when their classmates ask questions or when the instructor answers one's question.

One of the things that is extremely important to me, for any learning situation, is the relationships and I want the students to be as comfortable as they can, ask questions without feeling embarrassed, or without feeling they're being judged. So, a couple of things: first of all, they have a 'course related question discussion board' every time they email me or post their question into the discussion forum I get an email and reply to them so quickly. So very early in the semester they understand that's the expectation to post their questions there if they want a quick reply, and so they... they stop emailing me and so I always make sure to tell them you know, to give them positive feedback like great question... I'm glad you asked that... so they keep feeling comfortable and to encourage others as well." (Sarah, first interview, June 13, 2017)

Vicki believed the LMS was limiting when she wanted the students to work in groups. She moved a lot of group work activities to the Google Drive and thought that sometimes students did not do a good job of getting the group communication done through an online interface. Instead they had met on campus and that was taking away the main purpose of her online group activities outcome, which was their online communication. She also addressed that the discussions on the discussion board were limited within a few students' discussions rather than with the whole class.

My discussions were actually pretty good. They had to do two posts per week and for each of those discussions there was a prompt for a posting, and then a requirement for a reply. They actually would usually end up having long conversations. There would be conversations with just one or two people and it looked like ultimately, I discovered a lot of it was because they were engaging in these conversations using their phone. So, they weren't really looking at the discussion interface to see the entire conversation but they would get involved in conversations with just one or two people because they were doing it on their phone. (Vicki, first interview, June 14, 2017)

Nick stated that his student-student interaction was limited to the discussion board in the LMS and he was not happy about it. He thought that there are other tools like Google or Facebook that can provide better interaction opportunities for students with each other and with their instructor.

I do think Blackboard has application limitations there, and that potentially a better application would work better. So, for example, like on Facebook. Something everybody's familiar with, you can see discussion that happens, but the discussion that's on there is so much better than the Blackboard application. And I'm not sure exactly technically why that is. Some of the limitation I think is Blackboard based. It just doesn't work very well. (Nick, first interview, June 15, 2017)

As opposed to what Nick considered a limitation of online discussions using the LMS, Probosc thought that online discussion modality allows some students who may not be active in the classroom discussion to be more actively engaged.

I know there's a good bit of research that talks about how, especially for students that are more or less vocal, having the time to think about things they feel they're more likely to become active in the discussion, and you get frequently more and better discussion out of everybody. Like sometimes, I do things where you prime the pump by having them read through stuff, post things before the discussion, so that they're you know thinking about it. I got another idea from one of my colleagues where we do collaborative quizzes, they take it individually but they can prepare ahead of time. I give them the actual questions and they can discuss them. It's their choice whether they do it or not but they get to discuss it, you know, and that's based on the idea of learning, having a lot to do with engagement with material, with talking about it, thinking about it, and sharing with others or working with it in different ways, and so.. since what I'm really after is not to giving them little grades, but learning, most of them have motivation to participate in this discussion. (Probosc, first interview, June 14, 2017)

When I discussed the age of Probosc's students, it appeared that his students were graduate students and they seemed to appreciate the interaction within the LMS, or their own small groups. He believed Blackboard discussions allow every student to participate, while in face-to-face there is not enough time for everyone to participate in the discussion or share their ideas.

C. 3. Challenges of designing online courses. Designing all the course components before the beginning of the semester was a challenge that was sometimes referred to as a positive challenge by all the eight participants. The linear design for different assignments, presentation and the “ugly” visual design of the online courses were commented on by two out of eight participants. Changing and simplifying the content for the online course were also significant design challenges that were touched on by all the participants.

Sequencing the assignments was one of the biggest challenges that Vicki shared. She used to have a big project with smaller components where students were working on the different components while completing the big project along with the other assignments. She shared that based on the QM rubric and the instructional designer's advice, she should have changed her course to a more linear format. "I took my syllabus, my old syllabus, and basically just divided it up into this more linear set of units and assignments that could then just be given in sequence that didn't turn out to be too bad" (Vicki, first interview, June 14, 2017).

Amber had a lot of hands-on activities where students were active, doing things and learning. An example of that was a kit that they could use to explore some scientific ideas in that specific major. The online technology was not helpful or hands-on for her subject area. She thought if she was to record lectures it would take away the hands-on and active learning part of her course:

I kind of made that into photographs of those things and I still had them make actual project and they had a photograph of the process that they went through to make it and turn them in that way so that they would have the kit the materials. (Amber, first Interview, June 16, 2017)

One of the challenges that Amber currently was dealing with was having to have rubrics and having to grade everything including the discussions. She would not normally have to grade every individual based on a rubric in a face-to-face setting.

C.4. Challenges of teaching online courses. The challenges that were reported in the survey, interviews, and focus group interviews were categorized into subthemes that included technological, pedagogical, and design challenges. This sub-theme reports the pedagogical challenges mentioned through different data sources.

Amber, Vicki, Sarah, and Monica shared how they believe the students do not have as many problems with the instructions. Amber indicated part of it is the technology that they now have in their hand. They may not need as much instruction on how to take or upload a photo. However, they all also made adjustments to have more clear instructions for the students as well. Vicki and Sarah also added some sets of emails that they send out to the students aside from the announcements. Monica had worked on concise and clear instructions. Sarah and Dr. Strange addressed that they recorded some video instructions along with outlines and other supportive instructions for their students. Sarah still likes to have shorter instructions on the requirement page for the students. She believes the lengthy instruction and direction can go away and instead, fewer and clearer directions and expectations can replace them.

Sarah also talked about how she made an adjustment to have a student-centered assignment instead of instructions on a couple of tools that the students learned about in her class. Instead of teaching the students about the tools, she had them look at the outcomes and creatively find the tools that they would like to use to achieve the learning outcome.

I could use a lot of that information to apply it in an online situation and make the students more in charge and more responsible for their learning. It just takes time and you know, we don't have to change the whole course. We can just do one thing at a time that allows the students to be a lot more so, ... I mean to reduce spoon-feeding, and allow the students to be more in charge of their learning, especially when it comes to projects. (Sarah, First Interview, June 13, 2017)

Sarah thought those kinds of changes not only allow for a lot more creativity, but also includes less 'spoon-feeding.'

Vicki shared that one of the first challenges she faced when she started teaching online was the students' limited technological knowledge. Some of her students did not know how to use their Google Drive or search for tools. Amber's first semester's challenge was fitting everything into an eight-week long online course that normally was a 16-week long course. She said that trying to communicate that more clearly to students did not help as much as it should have, because they did not expect the amount of work that was required. She also found that when she still was not able to combine the learning outcomes and activities, that she had to do a lot of grading. Monica thought the challenges were ongoing, and it depended on the different cohort of students who take a course and how much they know about the online learning and the expectations in the online course.

I think it's easier to think about challenges because I feel like it's always a moving target. That--that--it really depends on students' comfort level. It's how much, sort of, life and technology they've had before they've decided to be an online student, what they need. (Monica, first interview, June 13, 2017)

One of the common themes that all participants shared about the students who are taking online courses was to find a good time when they are available to meet. Dr. Strange and Monica pointed out having students who attended the online meeting with small children. Amber also indicated that it sometimes becomes challenging when she asks the students in groups to meet, because some work full-time and have children and families and cannot find the time for the synchronous meetings.

Vicki, Nick, and Dr. Strange had challenges getting the students to read what they are required to read or even the instructions. Vicki shared that in some cases she doubted if they even read the emails and replies that she sent to some of their questions.

When they sent me a question by email, they didn't even bother to read the email that I sent them. You know it was just kind of eye-opening how little I could depend on them actually reading all of that part. I'm used to students not reading their assignments but not having them read the instructions either was kind of... (Vicki, first interview, June 14, 2017)

Nick started to record his lectures and flipped his instruction, by using the videos in his face-to-face course as well. He believed by doing so, they may have more time for in-depth discussions in the classroom.

It was clear and we're talking about a small amount of time to read. I thought this will be great, because we are chunking up the material into bite sized pieces. I'd tell them, this will probably take you about 10 or 15 minutes, time to read this and watch the video. Nope. Nobody. None!! My exam scores were much lower. Significantly lower on that unit, than they had been my previous semester when I had my traditional way of doing it. So, I've stopped right there. I don't know. I would never do a flipped class again unless there was some sort of accountability built in. I know there's research out there showing the effectiveness of flipped classes, but that's just a publication bias I think. We don't see the research that shows that they failed. (Nick, first interview, June 15, 2017)

Dr. Strange and Sarah used different tools like tests, reflection questions, in some cases discussions, and in the synchronous online meetings asking questions to keep the students accountable for the reading and writings. They still sometimes get questions that show that students did not read something or had not read assignments carefully, but having that accountability piece was important to them.

In conclusion, some of the challenges that were cited by Sarah, Amber, and Sam were: not being able to recognize their students, and that the human element was missing in their online courses. Another big challenge that was revealed by Dr. Strange, Vicki, Nick, and Sarah were students not reading the requirements, assignments, or in some cases, even the instructor's emails or instructions. Many of the codes that led to these themes were indicative of students' readiness and independent readings in online courses.

Theme D. Professional Development

Many faculty expressed they were thankful for the technology integration specialists and different professional development opportunities that were offered on campus that were not necessarily related to teaching the online courses, but relevant to the course design, such as backward-design or technology integrations.

Sam declared that some of the workshops were not too intuitive for him so he preferred the one-to-one interactions with the instructional developers and technology integration specialists (Sam, first interview, June 12, 2017). Dr. Strange (June 15, 2017) had attended and also conducted many professional development sessions but what he believes was missing was an ongoing process for the professional development, especially for designing and teaching online courses, he also believed there was a lot of content to cover in a short time, and he preferred to have monthly meetings with some of the people who were interested in ongoing professional community formats. He also shared examples of online communities and a shared drive that he and his trainees were using to stay in touch to share the great ideas and successful practices while being able to ask for help when they need expert opinions. Nick discussed

I think the online pedagogy is different enough that there should be something to address that. That would be one. Those are the two big things. The second would be, we need a better platform that makes interaction easier, somehow more engaging. I just don't think that the Blackboard discussion board works well. Which is a little baffling that there is a shortage of examples of discussion boards online. (Nick, first interview, June 15, 2017)

Dr. Strange (Dr. Strange, first interview, June 15, 2017) and Probosc (Probosc, first interview, June 14, 2017) also remarked on the importance of other professional training that is more focused on the online pedagogy. Pedagogy in this study was referred

to as any teaching strategy, method or teaching practices that faculty used to teach.

Probosc shared that when the new faculty are hired, they are attending orientations and professional development regarding the teaching methods, and that might be what we need to have for those who start teaching online courses as well (Probosc, first interview, June 14, 2017).

Monica, as a person who only taught online courses, shared that just having access to the community of other faculty beside her own department's colleagues is something that she would appreciate (Monica, first interview, June 13, 2017). Vicki, Sarah and Dr. Strange shared how they felt they learned a lot more applicable instructional strategies and tips by attending the other QM professional development such as the Peer-Reviewed and *Teaching Your Online Course* workshops or other workshops (Sarah, first interview, June 13; Vicki, first interview, June 14, 2017; Dr. Strange, first interview, June 15, 2017). It appeared that continuous interactions in the form of workshops or meetings, where faculty could exchange their information and challenges was something that they all believed was important for Dr. Strange, Sarah, Vicki, and Monica.

Conclusions Based on the Research Questions

Research Question 1

This study's first research question aimed to understand instructors' perception of the development of their technological, pedagogical, and content knowledge as online instructors after teaching a QM informed course. Instructors' perceptions of their own technological development were divided into two ideas: some who thought their

technological knowledge has improved as they have been trying to catch up with the upcoming changes that benefits their online teaching, and some who thought there was not necessarily a lot of technological development that they learned as a matter of teaching an online course. While all the instructors taught on the same campus, some believed that they had to use the campus wide LMS, so that was a limiting technology for them, while others used and modified other tools within the LMS. Some reported that they used other available tools such as Zoom, or Adobe Connect to have online meeting opportunities. In the first focus group where Nick, Sarah, Amber, and Sam attended, once everyone shared some of their ideas regarding the LMS and other tools, Nick said:

It sounds like some of the people in this group have figured some of those out anyway. I think probably because most of us anyway are pretty well familiar with traditional classroom teaching or some of us or have perhaps had quite a few years of experience at that, and read about it attended workshops and all sorts of things like that the learning curve for teaching online may be steeper than what we think. You know, may be some things that you need to learn pedagogically to be able to have an effective online class. (First focus group, August 22, 2017)

Like Nick, the researcher acknowledged different perspectives toward online learning and teaching within and between faculty that was the result of their technological knowledge. As opposed to what Nick indicated in the quoted above, that trend did not seem to relate to the teaching experience or age of the participants. However, those who had accepted the online learning and teaching as a legitimate learning experience had a different experience from others.

Another different experience within the participants of this study was related to their mindset on whether they thought it was acceptable to use third-party technology that was not adopted by the campus. It appeared that those who seemed technologically

independent replaced the technology tools that did not work for their teaching style, or learning outcomes. Those who felt limited to using the institutionally adopted technologies seemed to struggle more and have a negative view towards the online instruction. For example; Nick indicated that

The distance education office wants everybody to use Blackboard with the same design. I get that. I get the value of students being able to log in, see the same layout. It's just not a great tool. There are examples of professors that use all sorts of online tools for either hybrid classes or to supplement them in their in-person classes. (Nick, first interview, June 15, 2017)

In general, most indicated that they did have to learn about the LMS, and some of the tools that they needed to use for their online course, but they did not necessarily think that their pedagogical knowledge had grown. Some started to integrate more online instructional content and open educational resources and open access websites as opposed to books. Sarah, Monica, Vicki, and Amber had made adjustments to the online instruction and learned how to provide clear instructions in the online format. Sarah, Dr. Strange and Vicki indicated that they have instructional videos, along with written outlines for the students who do not read well but would prefer a video instruction (Dr. Strange, individual interview, June 15, 2017; Sarah, individual interviews, June 13, 2017; Vicki, individual interview, June 14, 2017). They explained that online modality actually allows them to provide a variety of different materials like video, audio, and outline, along with clear or more coherent instruction to their students.

Research Question 2

The second research question was aimed at understanding the pedagogical and technological challenges that faculty identified in their online teaching after teaching the courses for several semesters. The resounding reply to that question was *many*. Monica pointed out that some semesters, the students who attend the online course were different both in their technological skill level and their level of independent reading and following the instructions. Vicki (First Interview, June 14, 2017) shared that when she started teaching online she realized her students' technological knowledge and skills were a lot less than what she had anticipated. She also realized more demand for additional instructions such as announcements, email reminders, and clarification. Pedagogical challenges were related to the need for clearly written instructions and the need for adjustments based on the students' needs and readiness. The challenges that faculty experienced regarding both technological and pedagogical issues in online courses could be divided into different subcategories. One was technological advancements which included the technological challenges that faded out because of the emergence of other tools or new technology. For example, Amber, in her first interview, expressed that students now have access to better cameras and therefore she did not have to teach them how to crop an image to make it clear. Probosc (June 14, 2017) and Dr. Strange (June 15, 2017) also in their first interviews shared that long before the online courses were offered through a learning management system, technology tools were quite limited, while now their students can use a phone to attend an online meeting. Nick (First interview, June 15, 2017) believed that the Blackboard discussions did not have the quality of the class

discussions; on the other hand, Sarah (First interview, June 13, 2017) had integrated other technological tools such as Voice Thread that allowed virtual audio, video and typed discussion in a more inclusive online environment.

Another pedagogical challenge that Sarah indicated was the online environment's limited opportunity for deep learning. She believed that she was limited to the student's grade to assess their learning. Sarah also believed in a face-to-face class she could spot students who did not understand something, long before they submit their assignments. In the first focus group interview, Amber expressed that formative assessment might not necessarily happen in a face-to-face class either and that it depended on the instructors (Amber, first focus group, August 22, 2017). While Amber believed there are more chances of doing formative assessment of student learning in online courses, she also had expressed the challenges of integrating rubrics for online discussions. Amber expressed that having to grade the discussions in online courses was not something she would do in face-to-face courses. Therefore, Amber and Sarah both shared that assessment in online courses are dependent on the students' grades (Amber, first focus group, August 22, 2017; Sarah, individual interview, June 13, 2017; Amber, individual interview, June 16, 2017).

Sam (first interview, June 12, 2017) found it difficult to keep up with the new technology. He found the technology related professional development opportunities intimidating and sometimes irrelevant. While he cared about the student's learning, he did not want to learn about other technologies if it did not improve the student's learning. For example, he preferred to send the grades to the students in a spreadsheet. Faculty's

personal view of technology and technological and pedagogical knowledge were different from one another. Some of the challenges that they are still dealing with, were personalization and humanizing the interaction, online communication and providing timely feedback in surveys and interviews.

Research Question 3

The third research question was designed to discover the resources that the instructors used or have been using to overcome the learning curves in their online courses. One of the themes that directly relates to this question is professional development. Also, some of the resources were related to the technological advancements that the instructors have adopted, including online meetings through Zoom, using Panopto, PowerPoint, and other tools that allow the faculty to record the instructions in a visual step-by-step format. Some used collaborative tools other than discussion boards on the LMS, such as Google Docs and other Google Drive applications that allow online collaboration. In one case the instructor was adopting the online tools that are normally used on the business sites similar to where her students will be working in the future.

Some of the professional development opportunities that benefited faculty members' online instructions were additional QM workshops on teaching and designing online courses. Other workshops that were offered on campus to develop student-centered activities, backward design model, or to support learning about the technology advancements reported to be valuable when it was relevant to their course. Some participants in this study shared that they did not find benefits to learning about the technologies in the workshops; instead they preferred the technological training in an

individual level with the technology specialist. Sam, for example, mentioned that some of those workshops are too advanced for his level of comfort with technology and that is why he prefers being able to call or meet with their departmental technology specialist to figure out the best technology that he needs to meet the student learning outcomes. The instructors' preferences regarding the professional development that they needed and their approach to overcome the learning curves were different. While some preferred a one-on-one meeting with the technology specialist, some preferred to have group meetings with other online instructors.

Research Question 4

The final question that this study intended to answer was how the instructors make decisions regarding the student interactions within the online courses. Some instructors believed that teaching and facilitating online group-work or discussion is not easy in the online environment. Sarah, Nick, and Sam thought online learning does not allow deeper learning that can happen in the classroom. Nick and Sam had stopped doing group activities in the online courses. Vicki shared that it is not easy to have the student-student interaction and discussion in the LMS, so she had adopted a different tool (Google) because it allowed more team collaboration and communication than the institution's LMS.

While Sam and Nick were so critical of the online modality in general, Sarah, Probosc, Dr. Strange, Amber and Vicki were more comfortable with the online teaching format. In the second focus group interview Amber suggested that some of those aspects like formative assessment that can lead to deeper learning also are missing in the face-to-

face classes, and therefore it is more about the faculty member's teaching pedagogies and the online format has nothing to do with it. While the two other participants agreed with Amber, Sam believed that some courses cannot be taught online.

I've had a couple of surgeries in my life and I would prefer that that skill, surgical skill, not be taught online, for example. But I do think actually, I don't question, I actually think that my capacity to engage learners in online education is at least in part limited to my abilities, not necessarily the medium of online instruction.
(Sam, first interview, June 12, 2017)

While Sam believed that his technological knowledge is one of the bigger struggles for him and his online pedagogical practices, he also emailed the researcher after the second group meeting to share that he believes that some people only teach the online courses to avoid coming to work. While this theme did not appear more than three times, the researcher chose to include it here because Monica, who only teaches online courses, had shared her frustrations with the colleagues who do not recognize the time that she spends meeting with her students and preparing her class (Monica, first interview, June 13, 2017; Monica, focus group, August 23, 2017). Amber indicated in the second focus group meeting that some of the limitations that were addressed in the online courses can also exist in the face-to-face courses. Depending on the faculty member who teaches the course the preparation for the course content, the pedagogy and the challenges that they encounter may differ.

Summary of Findings

Analysis of the interviews and survey data was done inductively through coding of the responses to select the candidates who volunteered to interview. A convenience sample of eight faculty members were selected for in-depth interviews. This was done

based on the faculty members' experience in teaching online (at least two semesters) and a standardized training that was similar but not the same in the past few years. This training was supported through the application of the QM rubric when they were designing their online courses.

Asking about the limitations of online learning and teaching, faculty's understanding of their own pedagogical, technological, and content knowledge, and the development of those knowledge components while teaching an online course brought the researcher to the conclusion that when the faculty member is comfortable with the technology that they have adopted to use in their online courses, they reported a more positive view towards the online learning in general. Sam indicated that what is still challenging for him is to adjust to the modern technology. He enjoyed seeing his grandchild figuring out his mobile device in five to 10 minutes, while he has not figured out all the capacities of his own device. In his first interview (June 12, 2017) Sam expressed that he was not used to a trial and error model of learning. The generational differences were believed to be one of the main reasons that two of the faculty did not like the online modality; however, for two other faculty from similar ages it was the opposite. Actually, one of the faculty who shared a variety of technological tools that he was using to develop student interaction in his course was a self-identified "baby boomer."

When faculty were asked about the challenges to maintain an active learning opportunity in an online course, in one of the focus groups Amber shared it is possible

that a face-to-face course may not use active learning strategies as well. Dr. Strange indicated:

It's all based upon pedagogy, and planning it based upon feedback. One of the nice things when you're face-to-face is that you can provide immediate feedback because you're right there and you can see the response. That should be done online, and as far as a learning paradigm it could be more effective if you can do it in online courses. If somebody doesn't give feedback to students for a few days or a few weeks or something like that, then you're not going to have any learning happening whatsoever. (Dr. Strange, first interview, June 15, 2017)

In order for the students to remain actively involved and interested in the course, Dr. Strange addressed the importance of feedback and follow up in the online courses to maintain the interaction similar to the face-to face course. Dr. Strange and Amber shared the large amount of time that they need to spend grading or providing feedback to the students while they are in the process of learning, instead of when they are done. Dr. Strange in his first interview also shared, for example, using peer-to-peer feedback as opposed to the teacher-to-student feedback.

The questions and discussions need to be dynamic, it needs to be student centric where the students are responding to one another... because a single teacher if he or she has a load of three classes, will find it difficult to keep up on three sets of discussions. (Dr. Strange, first interview, June 15, 2017)

One problem with peer-assessment that Monica (first interview, June 15, 2017) shared was the extent to which students will provide honest, constructive feedback to their peers. She actually had to provide clear guidelines for that.

Sam and Nick revealed they went away from group activities in their online courses. This pedagogical shift is not necessarily positive or negative, but rather a limitation that helped them avoid additional problems that they may have to deal with in

the group activities. Sarah, Dr. Strange, and Monica were using online synchronous meeting tools to meet and provide feedback to their students in groups. They found the group work a more challenging pedagogy in some classes as well. However, they developed several check points and some individual pieces in their group activities that would be graded separately for each individual. Sarah used some peer evaluation for all the activities that were in a group format, but she still had some students who contacted her to discuss lack of contribution by one of their group members (Sarah, first interview, June 13, 2017; Sarah, First focus group, August 22, 2017).

In general, two faculty (Sam and Nick) seemed to have developed more resistance toward online modality the way it was practiced or adopted in this institution. They argued that the quality of learning and teaching in the online courses were not as good as the face-to-face courses. Sam strongly believed that some subjects just have to be taught and practiced in a face-to-face mode; for example, he mentioned that he prefers that the practitioner who does surgeries have a hands-on practice rather than an online experience. They also found online discussions limiting. While Sam seemed to have more challenges adopting new technology, Nick knew the benefits of using other technologies – for example, Facebook discussions rather than the discussion board in the LMS which he did not adopt for his class. This brought the researcher to the conclusion that possibly the lack of enough technological knowledge, or confidence to use different technologies other than the ones adopted by the institution and the instructional developers was one reason that faculty faced some of the challenges that they had when teaching online courses.

This chapter discussed the major themes that emerged from the survey data, interview, and focus groups. Themes were explained with examples across data sources and participants, and ultimately linked to the research questions that framed this study. In the final chapter, suggestions for practice and future study will be raised.

CHAPTER 5

DISCUSSION

The following discussion includes answers to the research questions. These answers were drawn from the data gathered through the survey, individual and focus-group interviews (the primary data), and observation notes (secondary data). There is also further discussion of findings with regard to the questions, as well as suggestions for future practices.

Analysis of the interviews and survey data was done in several steps. A survey was conducted initially. Out of the 30 participants who took the survey, 13 agreed to participate in the interviews that followed, but only 10 met the criteria for this study. The criteria were to have at least two semesters of experience teaching an online course and to have attended the QM workshop to apply the QM rubric to inform their online course design. Eight out of 10 responded timely and participated in an in-depth interview within one or two weeks from the survey. Seven out of the eight interviewees participated in one of the two focus group interviews. The interviews were transcribed and coded inductively, after which the codes were assigned into larger categories. Once categories were assigned and narrowed down, each code was situated in the category that was most relevant to the supporting quotes (See Appendix K).

This discussion is organized based on the research questions. Some of the themes and quotes that resulted in the answers were included to support the conclusions. The table provided in the Appendix K is a summary of how the codes and quotes were combined into the larger themes.

Research Questions

Research Question 1

What are instructors' perceptions of the development of their technological, pedagogical, and content knowledge after teaching a QM informed online course?

While most of the findings reported in response to this question were gathered from Theme D: Professional Development, some of the learning and development were the result of the challenges that faculty faced when trying to integrate online communication (Theme B), and some were the result of the other online modality challenges and the solutions that they found to those challenges reported in Theme C.

Among the eight faculty who participated in the in-depth interviews, most believed that the QM rubric and training were a good way to start, but they were not enough. QM informed their design; however, the pedagogical decisions that they had to make based on that design model were sometimes linear and limited their pedagogical practice. They indicated that they made additional changes after the unofficial peer-review was conducted and before they started to teach their online courses. In one case, the participant who had tried a less-sequenced online course expressed that the QM rubric limited her online course format and activities, but after trying a different sequencing one semester, she went back to using a linear, sequential approach for teaching her online course which was recommended in the QM workshop.

Participating faculty shared the different ways that their technological, pedagogical and content knowledge had grown because of teaching, but not necessarily because of adopting the QM rubric to design their course, or just because they taught

online. Below, faculty self-reported their technological, pedagogical and content knowledge improvements especially as a matter of teaching online.

Technological knowledge. Some instructors who participated in this study indicated teaching online made them look for other resources and technology that would support their online instruction, but others indicated they were not comfortable using additional applications and technologies other than what was provided in the Learning Management System. Amber for example expressed that moving from face to face to online was a big change. In Amber's QM training some other faculty had shared their knowledge of online tools that was not part of the QM workshop, Amber expressed that she was highly frustrated, because the QM rubric itself was enough and that she did not need to or want to learn about all the other tools: "I just wanted to learn about the QM and did not need to know about all these other tools they were talking about" (Amber, first interview, June 16, 2017). One faculty member indicated that even though he uploaded several PowerPoint presentations, he was not interested in learning about additional LMS features, unless they support student learning. For example, Sam (first interview, June 12, 2017) indicated that he does not use the grade book tool because students can see their grades in an Excel form which is emailed to them, and therefore that tool has nothing to do with students' learning.

An issue that warrants further discussion is how this relates to students' expectations of an instructor's technological knowledge when they take an online course. In a case similar to what Sam explained above, some students would expect to see their grades in the Learning Management System, as the LMS is designed to provide this

functionality and the system is recognized by this institution as the centralized online space where all communications and interactions happen in an online course. Perhaps this expectation of how the LMS will be used can also explain the frustration of some faculty who prefer to use other tools for online discussions and activities, when the alternatives are more compatible with the student learning outcomes. It appears that when the online course expectations and standards are stated and communicated with the students in advance, there are fewer problems. For example, Vicki (first interview, June 14, 2017) shared that she noticed her students “did not encounter as many problems using Google tools for the collaborative activities as they do when they use the LMS equivalents.” Therefore, she changed the requirements for her group activities and had the students use Google drive for their collaborative work instead. However, she still required them to submit their final work to the LMS to be graded. This shows that faculty who teach online courses may still need to learn how to use different functionalities in whatever LMS the institution uses even if they choose to adopt a different technology to enhance the student learning outcomes.

Most faculty indicated teaching online did influence their technological knowledge, although it was not the only reason for their technological knowledge growth. For example, Dr. Strange (first interview, June 15, 2017) said a lot of what he taught his students is related to technology integration and therefore, regardless of online or face-to-face modality, he would have continued to advance his technological knowledge. Probosc also thought his own technological knowledge improvement was due to the advancement of the technology and not necessarily because of teaching online. Among the eight

faculty who participated in the in-depth interviews, all of them indicated some level of technological knowledge improvement, most of which dealt with learning more about the LMS. However, six of the eight faculty indicated they learned about and adopted additional technological tools for their online teaching purposes.

Pedagogical knowledge. Many faculty indicated they believe we need additional pedagogical practices for online teaching. Nick and Probosc highlighted a need for some kind of workshop or orientation to teaching online, or possibly even additional pedagogical workshops. Sarah enjoyed attending any workshop related to student-centered teaching methods. She believes that while those workshops may not be focused solely on teaching online, they were helpful to her online teaching pedagogy and therefore resulted in some pedagogical development in her own teaching. A common theme that appeared throughout the different interviews is that faculty's technological knowledge (TK) influenced their online pedagogical knowledge more so in online courses than it would have in their face-to-face practices. Those who lacked certain technological knowledge seemed to express more pedagogical problems in their online teaching, while a lack of technological knowledge has less influence on their face-to-face teaching.

For example, Dr. Strange, Probosc, and Vicki indicated that they were able to apply any pedagogical practices they had for their face-to-face course to their online course. Vicki also shared that, "there are just some contents and concepts that are even difficult to teach in a face-to-face course, those are the ones that I find more difficult to teach in the online courses as well" (Vicki, first interview, June 14, 2017). Vicki also

shared a same comment during the second interview. Vicki's quote was very similar to what Sam had shared regarding teaching certain subject areas in an online modality. Vicki was expressing that when a subject is difficult to teach, it is difficult to find the appropriate pedagogy to teach it regardless of the course modality, while Sam believed the online modality was more limiting when teaching certain subjects and courses.

Content knowledge. From the perspectives of the faculty, most did not think that teaching an online course necessarily improved their content knowledge. Sarah, Dr. Strange, Amber, and Monica indicated that using and adopting new technologies caused them to modify certain content, or in some cases improve the content that they provided to their students. These same four faculty members indicated that they modified and improved the online instructions that they provided for their students. Dr. Strange also indicated that he has started using additional open educational resources to make the course contents more easily available and accessible to the students. One benefit of this approach is that it allows students to access course resources even after they have graduated from his class. Monica and Sarah both experience quick advancements happening in their fields and that required them to keep learning and developing new content for their courses. However, they did not believe it was necessarily the result of the online modality of the teaching as much as it was the teaching itself. Therefore, a majority of the faculty indicated that their content knowledge did not necessarily grow as a matter of teaching online, but having access to the online learning has allowed for more rapid improvement to their own learning of previously unknown content knowledge.

Research Question 2

What were the pedagogical and technological challenges that faculty identified in their online teaching?

Some of the pedagogical challenges identified in teaching online courses were providing timely feedback, limited possibility of formative assessment that informs teaching and learning, limitation of faculty and students interaction when grading - being too dependent on the grades and rubrics for assessment. Some other issues that led to some pedagogical challenges were: students' technological knowledge, their readiness to take online courses, their reading skills, and limited time to participate in any group activities. Another factor that influenced online pedagogy was number of students attending the online course. Major themes that relate to this question were both Theme A. Formative Assessment, and Theme B. Challenges of Online Interaction and Communication.

One of the most frequently appearing themes referred to by Sam, Sarah, Amber, Vicki and Monica is the limited face-to-face interaction that normally would help them remember the students' names, or realize when they have a question, or be able to see that they have not understood a concept well. Dr. Strange feels he has a better opportunity to make sure that all the students are listening because they have a weekly online meeting where the students use their webcams and therefore have to be attentive to the discussion. Monica also did not indicate the problem of not knowing her students because she required weekly synchronous meetings. However, those meetings were sometimes challenging because of the other life commitments that her students had. For

example, if there was a student who had a newborn or infant, they sometimes preferred not to turn on their camera. In contrast, the online meetings happened regardless of other factors that would normally affect face-to-face meetings, such as thunderstorms, tornado warnings, or other weather issues.

Another challenge caused by lack of interaction with the students in the online synchronous and asynchronous courses was that faculty needed to learn to provide concise and effective instructions which was also addressed in Theme B. Challenges of Online Interaction and Communication. Some faculty provided different modes of instructions, such as including videos and reading, but they did not believe the students completed those readings or watched the videos. Vicki and Nick both experienced the issue that their students would not completely read the instructions, emails, or did not watch the video instructions (which were a shorter version of the lecture they had in the classroom). Because of this, pedagogical approaches that keep students accountable in the learning process is another important aspect to consider. Nick shared his critical view of the flipped instruction method, and said that he is concerned that the studies that recommend this method of teaching are possibly biased. When Nick tried to implement the flipped instruction method by having the face-to-face class students watch videos that he had pre-recorded for them, the server statistics on the video showed that hardly any of the students bothered to watch them. He mentioned that he tried this approach a semester after the same videos were used in his online course, so he was sure that the online course students did not watch it either. Nick believed being able to present some lectures in the class resulted in better grades and students' performance in his classes. The researcher

thought that presenting valid studies and practices which report both failures and success when implementing specific pedagogical practices would help the instructors to avoid using the methods that may not have a good result in their field. Also, being aware of previous challenges addressed by practitioners and colleagues on the same campus may support a different approach to implementing specific methods which could lead to mixed results.

Research Question 3

What resources do instructors use to overcome learning/teaching curves in their online courses?

The answer to this question and data reported here were mainly related to the data reported in Theme D. Professional Development. Many of the faculty members said they contact the technology specialist or their colleagues in their department or the instructional developers when they are facing a new challenge in their courses. Vicki, Dr. Strange, and Sarah mentioned in their first meeting that they benefited from attending additional QM workshops. Some used technology tools that provided additional face-to-face features to their online courses. For example, Sarah, Amber, Dr. Strange, Probosc, and Monica required or provided synchronous online meetings as an option to clarify and follow up on the weekly activities. They all indicated sometimes those can be problematic for the students who work and study full-time. A possible solution to this problem is indicating the synchronous meeting requirement in the course information, so the students know that they will be expected to be available to meet online during certain hours, weeks, or days.

Sarah, Monica, and Dr. Strange received significant help and ideas from their colleagues and the other professional development opportunities that they have attended. For example, Dr. Strange, Sarah, and Vicki believed attending the Peer-Reviewer workshop from the QM program was a great benefit to their online teaching and course development (Sarah, Individual interview, June 12, 2017; Dr. Strange Individual Interview, June 15, 2017). Dr. Strange also attended the *Teaching Your Online Course* and many of the other QM workshops that were not required by this campus, but he found them to be beneficial. While he could not remember the specific change that he made to his course as a result of attending those workshops, he did remember implementing changes that he realized were beneficial to his online courses while attending those workshops (Dr. Strange, Individual Interview, June 15, 2017).

Sarah had never done a peer-review for QM courses, but found that attending that workshop and helping other faculty members with their course design has enabled her to adopt some excellent pedagogical ideas in her own online class. Monica, Vicki, Dr. Strange, Sarah, and Amber liked the alignment that applying the QM rubric enforced on their course development while they designed activities and assessments that aligned with the learning outcomes. Sam preferred contacting the technology integration specialists when he had problems because they helped him with his course specifically, and it was less intimidating compared to the other technology-related training on campus (Sam's first interview, June 12, 2017). Six out of eight faculty had tried to find solutions to the online challenges that they encountered, however; like any other class, depending on the

students who are registered in the course and many other factors there might be other pedagogical challenges that one would like to overcome.

Interaction with others to find solutions to the challenges including faculty development specialists, technology integration specialists, instructional developers and faculty colleagues were some who were mentioned in the different interviews. While these interactions and some workshops including the QM and other on campus workshops seemed to benefit many faculty, Sam, Monica, and Nick brought up the loneliness of the online instructor when it comes to what they need to know. For example; Sam in his first interview (June 12, 2017) said “I don’t know what I don’t know” and since he was not interested in attending many workshops, he was admitting that there might be many things that he doesn’t know. Monica also mentioned her concern regarding how she is being treated by some other faculty when they hear she teaches all the courses online.

You know, I tell people that I teach online and they either think I eat bonbons all the time, and do no work, or I don't know what they think. But it's clear – like their eyes glaze over a little bit and disassociate, and I hate that...so it will be nice to be in a group of people who teach online and maybe just to kind of talk about what it means to university professor who teaches online. Like identity kind of issues rather than skill based issues if that make sense! (Monica, first interview, June 13, 2017)

While the interaction with colleagues and attending other professional development, opportunities seems to be a good way for faculty to overcome the learning curves and challenges, for some faculty like Monica who taught entirely online, it seemed to be a lonely experience to overcome the different challenges in addition to the pedagogical challenges. Dr. Strange, Monica, and Vicki shared in the second focus group

that they thought the focus group itself was great professional development. The researcher believed the same. By attending and listening to what others have done or the challenges that they are dealing with, one's knowledge of what is available to them can improve vastly.

Research Question 4

How do instructors' make decisions regarding the student interactions within online courses?

According to some of the findings addressed in Theme B. Challenges of Online Interaction and Communication, the answer to this question differed largely from one person to another; those who had received a grant to offer their course through the distance learning department had to turn in their course materials to the developers and their courses were QM reviewed and QM informed. Some did not include any additional student-student interaction other than the discussion board. Faculty had the autonomy to make decisions, and some, like Sam and Nick, chose to exclude any group work activities from the online courses (Nick & Sam, second focus group, August 23, 2017). QM rubric has requirements for sufficient interactions between the instructor-students, students-students and student-instructor in addition to the student-content, however the way it is implemented by different faculty may differ based on their preferences. The faculty who seemed to share challenges that were the result of lack of professional development or technological and pedagogical knowledge seemed to resist it and exclude those activities to avoid the additional challenges.

Those who were comfortable learning about the different technologies and did not rely on the instructional developers to design their course seemed to implement more options to engage students in learning and to provide student-student interactions for their students. For example, Vicki moved all of the group work activities to Google. Sam and Nick tried to “abandon” the online group work altogether since they thought the activity no longer worked (Sam and Nick, first focus group, August 22, 2017) Nick also mentioned that he felt the main limitation was the fact that they had to run their online course through a different office than their department. That required using Blackboard with the same designs for multiple different courses.

I get that, I get the value of students being able to log in, and see the same layout, but it’s just not a great tool. There are examples of professors that use all sorts of online tools for either hybrid classes or support the in-person class, face-to-face, group.” (Nick, first interview, June 15, 2017)

It appeared that while the courses that Nick and Vicki designed were offered through the same office, Nick had more challenges integrating other tools into his online teaching, while Vicki or Monica continued using the LMS as the centralized shell, but integrated the other technological tools into their courses.

Based on the findings in Theme A. Formative Assessment, Sarah and Dr. Strange had added some peer evaluations to the assessment of the group activities. Sarah also required an online meeting to provide formative feedback to the students when they were working on group projects (Sarah, first interview, June 13, 2017; Dr. Strange, first interview, June 15, 2017). Amber started encouraging her students to use Zoom for their group meetings, but she had to initiate the meeting since her students did not have a Zoom account. Vicki had her students work on their group assignments in an online

collaborative setting using Google Drive tools. Monica had added some group activities and thought that giving peer feedback on some writing assignments allows quicker feedback for the students before the instructor provides feedback to everyone. While she aimed to protect the students' privacy, Monica also liked providing some group feedback when it was necessary and/or appropriate. Monica also said that she sets aside some group time in her Zoom online meeting session by using the breakout sessions feature, where the students can work in smaller groups while still being attached to the main session. Monica believed that it was not easy for all the students to provide critiques to their classmates who were their colleagues as well.

It appeared that depending on the students registered in the online courses, their engagement with the course, instructors, and classmates were different. This also was addressed in Theme C.1 Technological Challenges and Improvements, addressed in Chapter 4 of this study, where students' technological knowledge and access to technology added to the online modality challenges of Theme C. While Sam and Nick tried to avoid the group activities in their online courses (First focus group interview August 22, 2017), Vicki continued to require some group activities from the students (Vicki's first Interview, June 24, 2017). Sarah and Dr. Strange also continued to have group activities with individual portions that would help them determine if all the individuals were actively involved in completing the group work assignments. They also had some kind of peer evaluations where students could evaluate their teammate's contributions to the group projects. The interactions and the time spent on the online peer-to-peer or instructor-to-student and vice versa were so different in every different

course. Also, the methods used to maintain and initiate those interactions were so different as well. Some had synchronous and some had asynchronous online courses. The synchronous modality sometimes allowed more instructor and student interactions, or in some cases when they were divided to breakout rooms some peer-to-peer interaction opportunities were created as well. The asynchronous sections also had some group activities but the instructor had to provide more support and instructions for the students to collaborate online if they did not meet on campus.

Limitations and Choices

Like many other studies there were limitations that the researcher believed might have influenced the result of this study. Some of those limitations are mentioned below.

Participants

The research participants in this study were all volunteers. They could withdraw from the study at any point, and this fact was shared in writing and in conversation. Even though participants knew that their information would be kept privately by the researcher, consideration was given to the fact that it could be intimidating for some to participate in the study, especially if they felt vulnerable attending the focused group interview. In order to overcome that problem, everybody was assigned a pseudonym for the focus group interview, and they were able to login with the pseudonym and keep their camera off during meeting. Fostering a personal relationship among participants could have yielded more revealing discussion. However, it appeared participants were engaged with the questions and each other during the focus group interviews. Seven out of eight participants attended at least one of the focus group meetings on this study. One

participant did not request to drop from the study, however, they did not attend any of the focus group interviews.

Access to the Course Component or Design

The researcher did not have access to all the courses and course materials referenced in this study, and therefore the focus of the study remained on data that could be gathered through the surveys and interviews, including self-reflection questions in the individual and focus group interviews. If the participants were interested, they could choose to share other materials that could help the researcher better understand the course components they discussed, but the courses were not deeply reviewed by the researcher. As a perceptual study, this focused the research on the participants' self-report.

Different Experiences to Start the Online Course Design

Faculty members were from the same institution, and those selected for interviews in this study have experienced at least one similar workshop and taught an online course for at least two semesters. While all the participants were from the same higher education campus, the workshops were offered at different times during the last six years. This may have influenced faculty members' experiences with the QM training as it may have evolved, or content may have changed depending on the facilitators of those workshops. However, this current study's purpose is to understand the most commonly expressed challenges and improvements that could possibly lead to providing professional development opportunities that could benefit similar instructors who teach QM informed courses.

Research Instruments

The survey instruments found in the previous studies did not match the purpose of this current study. The survey and interview questions used in this study were developed by the researcher and were reviewed by an instructional designer, an online part-time faculty member and a full-time faculty who did not teach online for validation. The link to the survey was tested by two full-time faculty and one part-time faculty for clarity; however, since the instruments were not used in the previous studies, there might be aspects that could be improved in the future studies with same purposes. For example, question number 14, asks: "From what you remember from the QM or other workshops, which standards were the least important to you or your course? (It doesn't have to be exact standard)" This question was used purposefully to understand if there were any standards that faculty addressed that resulted in some resistance or issues that they later addressed in their online course. The researcher did not remind the faculty of any specific standards so as to not influence their responses. In the answers that were provided to that survey question, at least three people mentioned accessibility or technology as the least important QM standard. "Technology- handled very well by the distance education folks," "My students are librarians and will seek until they find," "Probably standard 8, I have not paid much attention to the accessibility." While these answers represent that faculty know they are missing something in their course, the question appears to have been misunderstood. The responses that were received seem to indicate that the faculty member did not have to worry too much about the specific standard; however, this did not mean it was not important to them, but it might have been somewhat taken care of by

the instructional developers (Anonymous Survey results, June_2017). Future studies might improve validity and reliability of the instruments for replicability.

Researcher's Experience

This study's researcher was an instructional designer. She had studied students experiencing the Quality Matters standards in their online QM informed courses, and also had attended three different QM workshops and taught an online course as an adjunct instructor for several semesters. While these experiences influenced her practice and view of how faculty develop and teach, they also improved her empathetic listening skills, to listen and to seek to understand others experiences. While this created a safe place for in-depth interviews and focus group conversations, it still might be considered a limitation of this study.

Suggestions for Practice

In this section, several recommendations are provided for the practitioners in the field, including: (A) faculty who teach online courses, (B) those who design and develop online courses or provide professional development opportunities for faculty who teach online courses, and (C) those who make decisions regarding the technology that is adopted by the institutions.

Suggestions for Faculty Who Teach Online Courses

Faculty who teach online courses may consider forming support groups for faculty who would like to share their online practices, challenges, and solutions. According to both focus group interviews (August 22 and 23, 2017), hearing what others have done in their courses or the kinds of activities they have designed is a valuable

professional development resource. During the focus group interviews, some faculty mentioned the solutions that they had used to overcome their problems. For example; Sarah's utilizing of the LMS to understand how much time her students are spending on doing the different activities (focus group 1, August 22, 2017) was an eye-opening moment to the other faculty in that meeting who did not think that the selected LMS provided enough opportunities to track students' activities. Similar discussions can offer opportunities in which faculty can understand the authentic ways that their colleagues are using a particular technology, or adopt specific pedagogy to teach or design a learning experience for their students.

Attending other workshops regarding the design of the online course, technology, pedagogy, and content related professional development may influence one's online teaching practices. In Vicki's first interview, she explained that after attending a content-related workshop which was an excellent example of what she did not want her course to look like; she put together her thoughts regarding how to design a different learning experience for her students (Vicki's First Interview, June 14, 2017). On the other hand, Dr. Strange believed attending the online workshop called Teaching Your Online Course influenced his online practice in the same semester.

Suggestions for the Professional Development Providers

Faculty who teach online courses seem to have different needs regarding professional development. A workshop like "Applying the QM Rubric" might provide a great tool to take the first online design steps; however, it is not practical to learn and remember the importance of ALL the QM standards over the course of a few days or a

two-day session. While many tools and support services are provided to the faculty members after attending those workshops, it appears that individual follow-up and one-to-one meetings with faculty were most appreciated by those who needed additional support regarding the online course development and technology.

Faculty members' technological knowledge appears to influence their pedagogical practices in the online modality. Providing ongoing workshops and professional development opportunities that allow faculty to discover the LMS or other technological tools at their own pace may influence the rate of their workshop attendance. It may also be beneficial for the faculty members to be able to compare and contrast the benefits of the tools that are supported on campus with other online tools and social media sites. For example, Vicki's experience to engage students in online discussions, and solutions other than the LMS that she found to continue integrating peer interaction could benefit other faculty members like Nick who were experiencing the similar problems.

Students' readiness, their understanding of what they are expected to do in order to succeed in their online course (Fetzner, 2013; Hung et al., 2010; Yukselturk & Bulut, 2007), and their technological knowledge before taking an online course also influence the faculty's online course management and introduce additional challenges. Providing pre-requisite workshops that prepare students for the online learning and communication environment before taking the online course would allow faculty to focus on the student learning outcomes. Such workshops would also prepare students to better focus on the course learning outcomes instead of learning how to study, use the online technology,

stay on task, or communicate in an online course where there is less “hand holding or spoon feeding” (Sarah’s first interview, June 13, 2017).

Suggestions for the Technology Decision Maker

Those who decide what LMS, or other technology to purchase for the institution, should consider an assessment of faculty needs and expectations regarding the technologies that would support their pedagogical practices. Currently, the available LMSs competitively provide different options to the faculty and students. However, in some cases, the social media and free online tools offer better opportunities for faculty and students to communicate and collaborate. A survey, or a need–assessment, not only allows the purchase decisions to be made according to the majority of the faculty needs, but also helps the faculty understand that the tools have been selected meaningfully and in accordance with the perceived institutional and student needs.

Suggestions for Future Research

During the second focus group with Dr. Strange, Monica, and Vicki, the discussion turned into a conversation where they started asking each other for ideas. In that interview, the participants mentioned that they would love to have similar opportunities in which they could hear how others are dealing with their challenges, and be inspired to possibly adopt those strategies in their own courses. Dr. Strange shared this was a form of professional development he would be eager to continue attending. Monica and Vicki also sent messages in the chat bar saying they agreed and that they think meetings within the online faculty could be one form of professional development. One of the possible future opportunities for a research practitioner is to form faculty

communities where they can share their challenges and discuss the solutions within the faculty communities. This could lead to what Dede and colleagues (2009) considered to be an applicable study, and the influence of this kind of professional development could be studied more deeply.

Similar phenomenological studies at institutions where the Quality Matters rubric is used and implemented differently can result in possible additional recommendations for the faculty, instructional developers, and those who make decisions regarding the development of the online programs, as well as influence professional development for the online faculty and technology adaptations. This study's scope was focused on the faculty who had experienced at least one professional training from the QM program, while those who had attended the first survey were any faculty who had taught online for at least two semesters. According to the results of the survey responses, many other instructors teach online courses but do not use a design rubric like the QM to inform their online course design. Some of those participants had shared that they were using their own experience or are working with other faculties in their department to design and offer online courses. Studying those other groups whose practices are not QM informed might also benefit those who develop additional on-campus training for the faculty who teach online classes. A longitudinal study of faculty over time might also yield interesting results.

A closer ethnographic study of a participant overtime might be one avenue. In both interviews Monica who was only teaching online courses mentioned her challenge

of being recognized as a faculty member and the loneliness that she sometimes experienced as an online faculty member.

Some programs across the university are doing a class or two online, but really, they still see themselves as face-to-face programs. You know, there's so much variation, uh, that I sometimes feel like as an online instructor that I feel a little misplaced. (Monica, first interview, June 13, 2017)

She expressed that some other tenured faculty do not consider the online teaching or online programs to be rigorous. She knew the students who were taking her class, especially in a master's level course, were librarians or teachers in the field who needed some additional academic courses or degree to keep up with their job. Many of her students only could take online classes. This theme also came up by Sam who argued that many of the faculty who teach online courses do it to make it easier for themselves, or they do it to avoid students. While Sam was aware of the students' need for online courses and that it may not apply to everyone, his mindset about online faculty was the issue that Monica was dealing with. Concerns about job security, social acceptance, and being accepted by colleagues were a few issues that Monica shared as a faculty who teaches courses in an online program. These important issues could lead to valuable further studies.

Finally, research into effective pedagogy tools that support or inhibit student accountability would be fruitful. Another issue that could add valuable information to the students' accountability in online courses may benefit those who have concerns that students are not reading, watching or following the instructions or the assigned readings in online courses. Understanding the motivational tools and pedagogies that allows

instructors to track the reading progress, deeper learning of content and following instructions could add a great value to the literature and online teaching and learning practices.

Conclusions

Some online teaching challenges that were mentioned by at least five participants in the survey were: (A) personalizing instruction and getting to know the students in online courses, and (B) providing useful and timely feedback to the students. While the faculty who participated in this study had experienced at least one design workshop that informed their online course design, the additional changes that each applied to their courses to enhance student learning and group work were vastly different. Many preferred to have some online synchronous meetings that helped them overcome the personalization problem, while some only could offer asynchronous online instruction because of what had been communicated to their students and the students' availability. Many of those who participated in the interview also found providing timely feedback to everyone a challenge in the online courses. In face-to-face classes, when a faculty member provides audible feedback to one person, other students in the room may hear that input, whereas in the online course it seems like they need to offer more personal feedback to each student. As Nick shared in the first focus group meeting (August 22, 2017), when adopting online instruction, the institutions should decide carefully just how many students are allowed to enroll in the online course, and the appropriate number of students for the online modality.

Another conclusion that could be drawn from the analysis of this study is that despite having similar levels of training, there were very different levels of faculty technological, pedagogical, and content knowledge. All these faculty members have experienced a similar professional development, but their frustrations were expressed in different ways. According to the data gathered through the interviews, discussions, and survey in this study, the researcher suggests that faculty member's technological knowledge influences their pedagogical experience and practices in online teaching. Specific pedagogical practices, like student interaction and collaboration, were impossible when the faculty member was limited to using the LMS or in some cases, it was an unknown potential of the tools to the faculty member. However, it was possible to enhance those interactions when the faculty was comfortable using other technological tools outside of their LMS. In addition to the above conclusion, some of the LMS issues and challenges that faculty experienced were not viewed as issues to the other faculty who had broader technological knowledge.

While an online course's content is arguably more accessible to a student, it appears that many faculty members have problems getting students to read or watch the lectures that they are required to view, as well as getting students to understand the requirements. Some faculty members mentioned that they provided reminders that went to the students in the form of text or emails, in addition to the announcements that were posted in their LMS. Some faculty found that short recorded lectures helped students when they could not follow the written instructions. On the other hand, Vicki and Nick found that the students do not necessarily watch those instructions either. This issue

requires additional study of students' behaviors in online courses, and possibly providing workshops that prepare the students to take online courses.

Online teaching experience seems to vary from semester to semester for the different faculty. Some instructors indicated that they have more engagement opportunities with, between and among their students, while some do not find it easy to do so. Many synchronous courses are designed in advance, but they are not necessarily self-paced. It appears that using the LMS, the instructor could track the students' progress and follow up with them when they do not spend adequate time working on their online course. Understanding the tools that empower faculty to understand the students' habits and behavior in online courses and ongoing training could benefit some online instructors. Providing feedback or continuous formative assessment is a time-consuming task, mainly when it is addressed to every individual student.

The researcher concluded that it is essential that the faculty members and decision makers understand the amount of time needed to design and facilitate an online course. Students' needs differ every semester, so technologies and pedagogies that benefit students' authentic learning in online classes have to be adopted on an ongoing basis. Therefore, continuous professional development opportunities and professional learning committees could add additional value to the faculty training. While online tools and pedagogies could benefit online teaching and learning practices, they could potentially add valuable learning support to the face-to-face courses and their instructors.

Summary

Many faculty reported that personalizing their class and getting to know students is one of their biggest problem when they taught an online course. This challenge may be addressed by the different faculty differently. For example, offering a synchronous online course might be preferable to some faculty members while it may not be to the others and therefore could be an instructor and student choice rather than an institutional decision.

Another challenge that participants of this study mentioned was providing timely feedback to the students. It appears that in the classroom, faculty can address feedback with the whole class when they realize that one or two students need additional instruction or feedback, while in an online course the feedback is mostly offered individually or to the smaller groups. This process can be more time-consuming and less formative when the feedback is only provided after the project is completed and submitted by the students in the online course. The number of students registered in an online course may influence how deeply and how often the faculty member can provide formative feedback to the students, and therefore needs careful attention. In addition, a more efficient tracking process than grading all the assignments in an online course when only attendance is required could help avoid additional grading. Another factor that the instructional designers and faculty should consider when designing the assessment for online courses is the possibility of breaking down the assignments to manageable chunks that would receive feedback from the instructor before the students continue working on the next steps and submit their final work.

According to the data gathered through this study, the instructors had very different TPACK knowledge and backgrounds even though they all attended similar trainings to design or teach their online courses. While some of these workshops could benefit some, it can create resistance and fear when the instructor does not find the workshop relevant to their course content, or their professional development. Therefore, it is very important to provide individual support from the instructional developers and other professional development providers for the instructors who prefer personalized, or in some cases, individualized training.

When analyzing the interview data, the trends demonstrated a direct impact of instructors' technological knowledge influence on their pedagogical practices in online courses. Those who were more comfortable using variety of technologies seemed to find pedagogical solutions to the challenges that they were facing. If the instructors are opposed to offering online courses, or are not prepared to use the learning management system or other tools that they need to facilitate their online course, they may not be able to effectively adopt the pedagogical solutions that are appropriate for the online modality. In addition, different students' needs in different sections and semesters demands high adaptability and problem-solving techniques by the instructor who teaches an online course, that needs to be communicated clearly before they agree to teach an online course.

Students' accountability and behaviors in online courses, as well as their different technological and personal needs, resulted in some challenges that faculty mentioned throughout this study. While many different workshops are offered for the faculty to

prepare to teach an online course, the students' preparation to take an online course is still dependent on the individual students and limited to the course orientations (if they exist) in the online course. Providing the appropriate instruction and professional development or a pre-requisite course that prepares the students to become online learners might benefit the online instruction and resolve some of the challenges.

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APPENDIX A
SURVEY ITEMS

1. Have you attended any Quality Matters Workshop prior to designing your online course(s)?
a. Yes
b. No
2. What was the name of the professional development that you attended?
3. Have you recently taught an online for credit course? Which semester?
a. Fall 2016
b. Spring 2017
c. Summer 2017
4. Do you teach any face-to-face equivalent of the online course? If yes, what was the last time you taught the face-to-face section?
5. Is the course that you are teaching QM informed or QM Certified?
a. Quality Matters (QM) informed (You used a/the QM rubric, and instructional designers reviewed your course and it was revised before it was offered)
b. QM certified (You/your department paid additional fee and QM assigned 3 peer reviewers to review your course.)
c. Not QM, I used my own experience and other resources to design my online course.
6. What is the major/content area that your course is developed for?
7. Did you have to study of teaching methods in your graduate majors, or have you ever had to pursue a teaching license?
8. What was the biggest pedagogical shifts that you experienced when you started teaching an online course?
9. How many semesters have you taught online course/courses?

10. Have you made any changes to your online course after the first semesters that it was offered? Can you mention some of the biggest changes that you remember?
11. Can you identify a challenge/ challenges that you still deal with, in an online course?
12. Can you name some online adjustments that you implement in your course?
13. From what you remember from the QM rubric, which QM standards were most important to you?
14. From what you remember from the QM rubric, which QM standards were the least important to you?
15. Would you be available/May I contact you one more times to answer some additional questions? If yes, what is your name, phone number and best time/times during the month of May-June to call you?

APPENDIX B

INDIVIDUAL INTERVIEW PROTOCOL (SEMI-STRUCTURED)

1. Why did you choose to teach your course in online format?
2. Before you designed your course, what was your experience with online courses?
(Have you taken or taught other online courses?)
3. What frameworks, resources, and support did you receive besides the QM rubric when you designed your online course?
4. What was the process that you went through to teach your online course/courses?
5. What were some of the biggest challenges that you faced when designing your course?
6. How many semesters have you taught a session of an online course?
7. What were some unexpected challenges when you delivered your online course for the first two semesters?
8. How do you enhance student's peer-peer, instructor-student and group interaction and active learning?
9. What are some pedagogical challenges or limitations in the current state?
10. Which QM workshops have you attended, was it face-to-face or online?
11. What other workshops besides QM have you attended that has helped you design your course?
12. What were your pedagogical challenges when you first started teaching online?
13. Have you ever applied any of the QM standards in your face-to-face courses after teaching online? If so which standards?

14. Are there any group activities or active learning strategies that you use in your face-to-face course? How are they similar/different from the online course?
15. How did the QM or other workshop/s help your design and develop your course?
16. Do you think teaching online had any effect on your technological knowledge?
How?
17. Do you think teaching online had any effect on your pedagogical knowledge?
How?
18. Has teaching online informed your content knowledge growth? Do you have any examples?

APPENDIX C

MESSAGE TO DEPARTMENT LEADERS

Dear (Department Leaders)

I hope my email finds you doing well. I am a doctoral student in the Department of Curriculum and Instruction. Currently, I am gathering data for my dissertation titled: "Teachers Pedagogical Practices Shift, Grow, and Need in Online Courses." I am collecting data this summer, and the more faculty answer my survey and agree to participate in my study the more valid and reliable my study may be.

The purpose of this study is to understand faculty's perception of their own technological and pedagogical growth when teaching an online course, and also for me to be able to create a list of tools and professional development ideas that can support those who want to start teaching online courses.

The personal information such as the name of the faculty or their course, or the name of the university will not be mentioned in any publications or presentations. The results of this study will be used for my dissertation research and possible publication and presentation purposes however, participant's identities will remain confidential.

Would you please consider sharing this information with those who have taught/are teaching online courses?

Attached is the message that you may consider to send with the link to the survey.

Thank you,

APPENDIX D

MESSAGE TO FACULTY

Dear Online Faculty,

This email includes a survey to a doctoral student (Name of the researcher) dissertation study of faculty's pedagogical and technological knowledge growth when teaching an online course. If you have taught an online course for two or more semesters, please consider participating in her study. (Note: you don't have to be a full-time faculty; you also don't have to be teaching this semester)

Your participation in this survey and study is voluntary. The result of this study will be helpful to those who plan professional development and design tools that can support faculty who start teaching online. There will be no mention of the institution or personal names in the publications or presentations that may be the result of this study.

If you have any question, you can contact (Name) at: (Email Address) or (Phone Number)

Please click on the link below to take this survey.

([LINK TO THE ONLINE SURVEY](#))

Sincerely,

APPENDIX E

MESSAGE TO ONLINE FACULTY

The researcher also sent an email to those who offered their courses through the distance learning office at the same university, where most of the institution's online programs are offered. A direct email invitation was sent to those faculty using the IRB approved message with a link to the survey.

Message that was sent to the online faculty directly by the researcher:

“Dear Online Faculty,

This email includes a survey to my dissertation study survey of faculty's pedagogical and technological knowledge growth when teaching an online course. If you have taught an online course for two or more semesters, please consider participating in this survey.

Your participation in this survey and study is voluntary. The result of this study will be helpful to those who plan professional development and design tools that can support faculty who start teaching online. There will be no mention of the institution or personal names in the publications or presentations that may be the result of this study. Please consider participating and passing this message to your colleagues who teach/ have taught online for more than two semesters.

If you have any question, you can contact me at (Email Address) or (Phone Number)

Please click on the link below to stay this survey.

(LINK TO THE ONLINE SURVEY)

Sincerely,”

APPENDIX F

CONSENT FORM

On the First page of the survey faculty read the consent and had access to the researcher contact information for possible questions

Thank you for participating in this survey. For more information, you can contact me at (researcher's email address)

This study consists of three different steps. You may choose to only participate in the first step, which is taking this survey. You do not need to provide your name if you are only planning to complete the first step. However, please provide your name and contact information if you are willing to participate in two 20-30 minutes online or face-to-face interviews (one individual and one focus group). Maryam will replace your name with a pseudonym before she shares any of the information gathered through this study with her committee or for publication purposes. For the focused group (second interview) you will be able to log-in with a different name and turn off your camera/mic. if you don't want other participants to know who you are.

The first interviews will be conducted online through zoom or face-to-face (based on your preference). My goal is to connect with at least five participants for the two follow-up interviews (20-30 minutes each) preferably during the summer in the hopes that you may have a more flexible schedule. So if it's possible for you to participate in the interviews, please include your contact information, and I will contact you During the month of June-August 2017 for the first interview and July-September 2017 for the second interview (focus group).

Note: The risk of this study is no more than everyday life. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data via third parties. If you have any questions regarding the survey please contact:

(Researcher's full name) at (researcher's email address) or (researcher's phone number)

IRB administrator contact information:(IRB administrator's email address), (IRB administrator's phone number).

Your participation in my study is totally voluntary and greatly appreciated! If you agree to the conditions of this research study, please click next and start the survey.

APPENDIX G

REQUEST FOR CONTACT INFORMATION

On the last page of the survey, the interview information and dates were stated and faculty were asked to include their contact information and preferred method of contact if they agreed to this statement:

“Interviews (June-September 2017)-

On this page of the survey, I am requesting your name and contact information. The only person who will access this information will be the researcher (researcher's full name). This study consists of three different steps. You can choose to only participate in this survey and not provide your name if you don't want to interview.

Your participation in the interview will allow me to continue my study in more depth. You can provide your name and contact information if you don't mind to participate in two 20-30 minutes online or face-to-face interviews (one individual and one focused group).

I (researcher's full name) will replace your name with a pseudonym before sharing any of the information gathered through this study with my dissertation committee or for publication purposes. For the focused group (second interview) you will be able to log-in with a different name and turn off your webcam/microphone if you don't want other participants to know you, (I will provide more information and instructions for you if needed).”

APPENDIX H

INTERVIEW CONSENT STATEMENT

Below is the consent statement that was read to the interview participants before they agreed to participate and be recorded:

"Thank you for agreeing to participate in my study, your participation in this study is completely voluntary, and you can withdraw from participation at any time, therefore; it is so valuable to me and this study. The risk of this study is no more than everyday life. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data via third parties. I will use a pseudonym when I share the transcript with my dissertation committee or faculty advisors.

I will also, be requesting one hour long online meeting during July-September with you and other participants (a group meeting with you and other participants of the study) for that focus group/interview you can zoom-in using a pseudonym that you would like to chose now. I will carefully protect your confidentiality and it is the expectation that all members of the group will protect the confidentiality of others after the focus group is completed. You can also disable your camera and microphone and only type your answers/ideas in that second interview.

Do you mind if I record this interview so I can use the recording for transcribing the interview for my study purpose?

Do you agree to participate in a second interview in the near future (July-September 2017)?

Your name will be kept privately with me is there any pseudonym that you would like me to use for you when I share this data with my committee or in the publications?"

APPENDIX I

FOCUS GROUP CONSENT STATEMENT

During the focus group interview, the consent statement provided below was read to the interview participants and they agreed to participate and be recorded:

“Thank you for agreeing to participate in the second interview. I will carefully protect your confidentiality and it is the expectation that all members of the group will protect the confidentiality of others after the focus group is completed. However, I cannot guarantee that other members will protect your confidentiality outside of this group. Direct quotes if any, will be used by the pseudonyms, does anyone mind if I record this interview so I can use the recording for transcribing the interview in the future?

Do you agree to Maintain the integrity of the study by protecting confidentiality for those who are concerned? (everyone agreed by saying yes)

Everyone’s idea is very important in this meeting. Since we have a limited time we can take turns. Please take 30 second to think about the statement or quote that was read to you. Then try to share if you agree/disagree with the statements or quotes that you hear in 30 seconds to one minute. If there is enough time feel free to share a quick example, that you can think of. if you ran out of time you can continue typing your thoughts into the discussion/chat box. When everyone continued sharing their thought feel free to share if you agree, disagree or can think of additional comments that you would like to share.

If you could think of something that you believe is relevant to our conversation after this conversation is over, please feel free to email and share it with me.”

APPENDIX J

FOCUS GROUP QUOTES AND QUESTIONS

1. Read a few Quotes from

What are your thoughts regarding formative assessment in online courses?

(Possible Follow up) Do you believe they learn “deeper/better”, or that they are more actively learning in face-to-face courses? why?

2. Read a few Quotes from pedagogical limitations, then ask:

What are your thoughts pedagogical limitations in online courses?

3. Even Though there are technological advancements that helps communication, everyone mentioned how it’s not easy to address student’s confusions if they don’t communicate it in a written format or if they don’t have synchronous meetings.

To what extent do you agree/disagree with this statement? What would you like to add?

4. Most faculty mentioned that having synchronous meetings are very important and helpful to their students, specially to provide formative feedback and their own group work. However, because most of the students are working full-time or are so busy with family/job they can’t find the right time to zoom in. Many mentioned how group works also turn into a challenge when some students end up doing more work than others.

What are your thoughts regarding these or other pedagogical limitations in online courses?

5. If you were told to decide what kind of professional development we should provide for those who teach online, **what would you recommend? Would you also recommend any other resources than workshops for example online resources?**

APPENDIX K
CODING PROCESS

Major Theme: A. Formative Assessment	
Minor Theme: A.1 Assessment as teaching	Minor Theme: A. 2 Assessment of learning
<p>Some examples of the Codes led to A.1 Theme:</p> <p>Change in design based on student performance</p> <p>Influence of teaching online on Face-to-face instruction</p> <p>Applying QM to face-to-face</p> <p>Changes of course content based on student needs assessment</p> <p>Change activities- needs assessment</p> <p>Combine learning outcomes and activities for fewer activities- needs assessment</p> <p>Concise/clear instruction- needs assessment</p>	<p>Some examples of the Codes led to A.2 Theme:</p> <p>Tracking students' progress</p> <p>Rather grading- No observation of their pre-post assessment</p> <p>More assessment and checking in online</p> <p>Check points in online</p> <p>Group work assessment</p> <p>Second chance to correct their work online</p> <p>Subjectivity in assessment and feedback</p> <p>Discussion assessment</p> <p>Discussion feedback</p>
<p>Other Codes related to both A.1 and A.2</p> <p>Online explicit assessment</p> <p>Deep learning</p> <p>Grading vs. assessment</p>	

Feedback**Timely feedback****Formative feedback****Grading discussions****Grading based on the rubric****Final not process****Rubric for everything****Cognitive load for teachers****Personalization**

Some example of the quotes based on themes:

A.1. “it's so invisible face-to-face when you have to make it online you have to make it explicit and you have to think about what that test is doing you have to think about what's the feedback you're going to give, on that test and what's the answer you're going to give you know...” (Vicki, first interview, June 14, 2017).

A.2. “I don't have the luxury of going deeper to ask them what their thinking process so I just you know grade them the way I think it should be but it may or may not be fair” (Sarah, first interview, June 13, 2017)

Major Theme: B. Challenges of online interaction and communication

Some examples of the Codes:

Students reading instructions**Students' access to collaborative tools**

Students' time for team work or meeting

Online-labor intensive

Definition of engaging

Definition of active learning

Definition of hands-on

Students communication

Students' reading the responses

Students using face-to-face when have to meet online

Team work- not interaction but cognitive development

Good examples of student-teacher interactions

Master level students

Communicating online

Reminders

Face-to-face better than online

Online meetings

Definitions of engaging and good design

Limited discussion board

When students did not get something- examples

Using Google instead of LMS

Online courses' consistency

Peer interaction not required

Peer evaluation challenges

Team work

<p>Peer assessment of teamwork</p> <p>Other online professional networks for graduate students</p> <p>Online groups other than formal class made by students</p> <p>Online groups other than formal class made by faculty</p>
<p>Some quotes that led to the code: students reading instructions</p> <p>Well, individual student to instructor works ok, technically. But it doesn't work ok in terms of efficiency. It's very labor-intensive process. Also, I guess I really have no idea if students read the response that I gave to them (Nick, first interview, June 15, 2017)</p> <p>They didn't necessarily read the announcements either so, you know, we were back to the whole reading issue after a while but I think the translation from my syllabus to the e-learning was actually pretty straightforward.... I just had to... you know, kind of work through it step by step by step (Vicki, first interview, June 14, 2017)</p>

Major Theme: C. Online Modality Challenges			
Minor Theme: C. 1. Technological challenges and improvements	Minor Theme C. 2. Learning Management System (LMS)	Minor Theme: C. 3. Challenges of designing online courses	Minor Theme C. 4. Challenges of teaching online courses
<p>Codes:</p> <p>Student' access to technology</p> <p>Students' technological knowledge</p> <p>Motivation to learn about newer technology</p>	<p>Codes:</p> <p>Online collaboration limitation LMS</p> <p>Not user friendly</p> <p>LMS capacities</p>	<p>Codes:</p> <p>Sequencing (linear model) in online design</p> <p>Alternative model to design#QM</p> <p>Presentation and visual design</p>	<p>Codes:</p> <p>Simplifying project description</p> <p>Shortening the readings</p> <p>Students not reading</p>

Older technology challenges	Utilized LMS capabilities	QM being too strict-unnecessary	Students not watching
Access issues-faculty	Did not discover LMS capabilities	Designing all the course components before the semester starts- Positive	Students not checking in
Technology trainings	Third party tools anchored in LMS	Designing all the course components before the semester starts-negative	Students don't know that they don't know
Graduate students' technological knowledge	Course content did not copy	Finding what is where	Checking student's understanding
First semester was a challenge	Using alternative to LMS	Maintaining the assignments	Keeping everyone on track
Too much to keep up with	Google applications	Designing and forgetting about it!	Finding appropriate time for students to meet
Workshops are not relevant	Better applications used in the field	Simplifying content	Not being able to recognize students
Students using phone	Had LMS training	Pedagogical challenges	Different paste
	At the beginning -Intimidating LMS	Different group of students	Other online pedagogies
		Updating everything very often (almost re designing)	Students' accountability

Example of the codes with quotes from the interviews

C.1. Student technological knowledge

C. 1. Yeah, it actually, students mentioned that they had never used Zoom and they liked it actually. I had two different groups who asked me if I could zoom with them on the weekend, because they did not have their own Zoom account. I initiated the

meeting but after a few minutes just let them talk to each other and go away for a few hours. I was like ‘well, can't you just do that yourselves?’ and they said no, they didn't have a Zoom, you know... (Amber, first interview, June 16, 2017)

Example of the codes with quotes from the interviews

C.3. Alternative model to design#QM

C.3. I tried to do a little bit of the least sequencing the assignments and even that didn't work very well, I had to go back to the linear model.

Major Theme: D. Professional Development

Instructional planning/ Pedagogical improvement (sub codes: time management, planning ahead, alignments, improved instruction)

Online experience before QM

Other workshops before QM

Future professional development

Faculty feeling out of place

No trial and error learning

QM training experience

Self vs. someone else posting their materials online

Content knowledge workshop

Critical view- If the online QM standards were actually evidence based

Difficult in both online and face to face

Student-centered

Influence of teaching online on technological knowledge

Stipend to design online course/attend workshops

Attending one vs. multiple QM workshops

Ongoing professional development

Online resistance

Working with colleagues

Starting to use some other tools

Integrating some form of online meeting

Different formats of professional development

Personalized- with technology integration specialists

Learning what not to do

Additional QM workshops and their influence

Helping others and talking with colleagues

Some example of the codes with related quotes:

“Probably better attention to the alignment of everything because of quality matters, probably better timing of assignments, spending a little more time figuring out how long that's going to take people. I like online teaching except for the grading, seems like the only, you know, a lot of the interaction is great” (Amber, First Interview, June 16, 2017)

“One of my weaknesses is sometimes, like, for the face-to-face class I don't plan as carefully as some might ahead of time and I build things as I go and that's what harder online and so (laughter) it was a good shock especially when I had to give them all my materials ahead of time to have it all worked out.” (Probosc, June 14, 2017)

“I think I'm better at giving directions now because I've had to write out direction so much, I can't just rely on telling the class what they should do, I have to look at it on

paper and revise it and do all this before I posted to them so it's I think I give better directions than I used to. I think I see more opportunities for using different kinds of tools that I would have never used in a face-to-face context probably.” (Monica, First Interview, June 13, 2017)

APPENDIX L

DATA COLLECTION TIMELINE

Surveys were sent out on June 2, 2017 to all departments, and June 7, 2017 to individuals who taught through the distance learning office.

Eight individual interviews were conducted between June 12- June 16, 2017.

June 12: Sam

June 13: Sarah and Monica

June 14: Probosc and Vicki

June 15: Dr. Strange and Nick

June 16: Amber

Two focus group interviews were conducted online on:

August 22, 2017: Focus Group 1

August 23, 2017: Focus Group 2